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MEDICAL PROBLEMS OF THE MILITARY ESTABLISHMENT

MAJOR GENERAL MALCOLM C. GROW

THE AIR SURGEON

Washington, D. C.

From the War of 1812 until the present time, the wooden and later iron and steel walls of the British and American fleets have stood between our heart land and the aggrandizements or military threats of any potential enemy. Neither the Central Powers in World War I nor the Axis nations in World War II were able to breach these barriers or approach our continental installations and resources, wherein lie the bulk of our military potential. This unchallenged security, based on our position of relative geographic immunity, encircled and protected by a ring of steel, has perhaps engendered an attitude of domestic complacency, a complacency which may, for the first time, have been jolted a bit, simultaneously with the realization of the devastation wrought by the atomic bomb bursts at Hiroshima and Nagasaki at the conclusion of World War II. Just as the massed infantry assault tactics and tremendous personnel attrition of the early years of World War I were gradually replaced by the infiltration operations of the final campaigns, which represented the precursor of the type of action which characterized the early operations of World War II, so the air offensives and the atomic bomb which foretold the doom of Germany and Japan represented the fullest fruition of the alliance between scientific and military thinking, and simultaneously furnished us with a realistic pattern through the application of which we may anticipate the scope and magnitude of the first campaign in any subsequent war. The effective range of modern aircraft types are already surpassing the 1,600 mile action radius of the B-29, while currently planned aircraft, to be delivered in the not too distant future, will probably bring all of the inhabited areas of the earth within the striking range of the several major potential belligerents. No area and no city may then consider itself immune from the effects of atom bombing. Our seaboard cities are particularly vulnerable, since this new weapon of destruction may be delivered with equal effectiveness by a tramp steamer at dockside or from an aircraft flying overhead. Only one who has seen the ruins of the atom bombed cities of Japan and who has examined the casualty studies which were done there can begin to imagine the damage and loss which would be sustained if a dozen of our major ports were simultaneously attacked in this manner.

New methods of warfare demand new and better preparations for defense. Certainly the British, and afterward the Germans, in World War II, prepared themselves for the incendiary and explosive bombing which was expected to materialize as aircraft production expanded. Yet the British were hard put by the raids on London and Coventry and the German defense organization was overwhelmed by the concentrated weight of bombs which fell on the cities of the Ruhr valley, Berlin and especially Hamburg. We should have to multiply this destruction a hundred fold in order to approximate the magnitude of the disaster which would be associated with the detonation of an atomic bomb in New York, Washington or Chicago. Of course, many of those injured by radiation emanations could not be saved, since eventual, although not immediate, death is the inevitable consequence of a lethal dose of gamma particles; nevertheless, all living casualties must be screened in order that therapeusis may be concentrated on those irradiated persons whose prognosis is eventually favorable, or at the worst, doubtful. Furthermore, those persons receiving lethal doses of radiation would require palliative treatment and nursing care. I do not believe that the medical means to cope with such disasters could be organized on a voluntary basis. To underwrite the efficient utilization of the available doctors, nurses and medical supplies in the face of damaged transportation and communication systems would require definitive action on the part of a central civilian medical authority closely associated with a civilian defense organization, the latter

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being empowered to mobilize and direct the entire civilian defense potential. Some assistance might be expected from the military. The Air Force in particular might furnish air evacuation and air transportation for medical supplies and personnel. However, it is necessary to assume that the National Defense Establishment, together with its medical military components, would be engaged in retaliatory action against the enemy to the limit of its capabilities, and consequently would be unable to render extensive direct support to the civilian population. To require more assistance from the armed services would weaken our offensive effort and so invite and encourage more extensive enemy action directed at the destruction of our resources, our industries and our will to resist.

Yet I do not propose that the medical services of the armed forces divorce themselves entirely from the civilian economy and permit our homeland to defend itself as best it can. Instead, there is one major contribution which the military medical service may make to the betterment of the civilian welfare in anticipation of such emergencies. Our contribution would consist of the application of a rigid economy in the employment of doctors and allied specialists. During World War II, approximately one third of all the doctors in the nation were utilized by the armed services to furnish medical care for approximately one tenth of the population. In a future war, the hazards associated with civilian existence may approximate those of soldier, sailor and airman. It is only reasonable, then, that the standard of our medical care, together with the aggregate of our medical resources, should be divided more equally between the civilian and military components. The risks to be incurred by services must be evaluated against the casualties which may be expected in the civilian population, and our medical means must be balanced on this comparison. The National Security Resources Board, established by Public Law 253, represents an agency wherein civilian and military leaders from the highest levels may explore and develop the medical requirements of the military and nonmilitary categories. It would be most desirable if a representative of the Council on Emergency Medical Service might be assigned to the Board to assist in the development of the civilian requirement for our medical resources and to insure participation of the American Medical Association in decisions which involve the health and welfare of the nation. The armed services may render no greater assistance to the National Security Resources Board and to medicine as a whole than through the practice of rigid economy in the authorization of medical officer assignments throughout the military structure. In general, I believe there are four methods through which the armed services may apply the principle of parsimony in the employment of doctors. These are:

ASSESSMENT OF REQUIREMENTS

First, the realistic assessment of medical officer requirements. Doctors were procured for the Army and the Air Force throughout World War II under the outmoded thesis that approximately six and a half physicians were required for each thousand troops serviced. This procurement objective was based on World War I experience, when large numbers of soldiers were employed on very limited ground fronts and bitterly contested each square foot of territory in a dogged war of attrition designed to destroy the manpower reserves of the enemy. Casualties were in consequence unprecedented, as were the demands on the medical services. World War II saw the evolution of a new military philosophy in which major efforts were directed at the destruction of the war-making potentials of the enemy, and particularly his industrial resources. Relatively fewer casualties were sustained when considered in the light of the scope of the actions involved. Had the effect of the strategic bombing of Japan been anticipated by the Medical Department of the Army, procurement of doctors against the casualty rates which were expected to characterize the invasion of Japan would have been unnecessary. Neither was enough cognizance had of the advancement of scientific methods in the practice of medicine. New biologic and chemotherapeutic drugs in combination with better immunization methods have reduced the incidence and simplified the treatment of a variety of medical conditions and illnesses which have previously been associated with the conduct of military operations in the field. At the same time, British experience in World War II indicates that adequate medical coverage can be afforded with the employment of a smaller ratio of medical officers. The procurement of medical officers in a subsequent emergency, if based on the actual medical requirement of the armed services rather than on an arbitrary ratio of six and a half doctors per thousand troops, would effect a most significant and obvious savings in the employment of physicians by the military establishment.

REPLACEMENT OF PROFESSIONAL OVERHEAD PERSONNEL

Second, the replacement of professional overhead by nonprofessional personnel. When the organizational pattern of the Medical Service is examined, it is apparent that a considerable number of medical officers are being employed in positions and are discharging responsibilities which are not directly concerned with the professional care of military personnel. This is particularly true at the higher staff levels and in the larger hospital installations. There are certain staff planning capacities in which the professional background is a necessary adjunct; however, a significant opportunity remains for the in-

troduction of economy in the utilization of medical officers through the substitution of nonprofessional personnel for the doctors currently employed in hospital and other medical overhead administration. The rapid transportation of patients by air, where medical attendance by nurses and trained enlisted men suffices for the care en route because of the short duration of the evacuation interval, would render unnecessary the employment of large numbers of medical officers to staff the more slowly moving hospital trains and ships. At the same time, hospital manning tables may be evaluated in the light of the mission and actual capabilities of the unit with a resulting moderate saving in the professional categories.

DELAYED DEPLOYMENT

Third, the delayed deployment of the professional and specialist group. Throughout World War II, it was the custom to activate hospitals as complete units within the Zone of Interior for deployment to theaters of operations overseas. Once activated, the organization pursued a training program of several months' duration, in some instances with its authorized equipment, was shipped to a port of embarkation, processed there, transported overseas, disembarked, personnel and equipment assembled, perhaps retrained in the theater, again transported to its site of employment, set down and prepared to receive patients. Not infrequently a year elapsed between the departure of individual physicians from their native community and their readiness to utilize their training in the attendance of military patients. Yet all of this transitional and migratory activity on the part of the doctors can hardly be regarded as conducive to fostering their ability to provide medical care for the sick and wounded. This prodigal use of trained physicians could be corrected through the simple expedient of delaying the deployment of the professional groups. In practice, the system would operate in this fashion: With the announcement of mobilization, civilian physicians would be channeled through reception and classification centers where their background would be evaluated and their suitability for military duty determined. This processing would require no more than a week in the case of each individual physician, who would then return to his local community to continue in his practice, subject to subsequent call to duty. Meanwhile, the activation of hospital units and the assembly of their enlisted personnel and equipment would continue under the direction of nonprofessional military supervisors. The professional group would be assigned on paper prior to the departure of the unit for overseas, and not until then would the individual doctors be notified of the probable date of their commitment. The hospital would be shipped to the theater of operations with only a small fraction of its professional staff, the remainder of which would continue to remain in their local communities. On the arrival of the unit in the theater and on completion of its intratheater processing and transportation, the hospital would be erected at its site of employment by the nonprofessional echelon already assigned. Shortly before the anticipated date of the opening of the hospital, the theater commander would call on the Zone of Interior for the shipment of the professional staff, who would be transported to the theater by air or sea, arriving a few days prior to the actual opening of the hospital for the reception of its first increment of patients. The savings to be accomplished through the delayed deployment of the professional staffs and specialists in the case of hospital organizations are readily apparent.

IMPROVED EMPLOYMENT OF SPECIALISTS

Fourth, improved employment of the specialist categories. In the past, it has been the custom to distribute professional specialists among theaters of operations and the Zone of Interior in a manner which parallels the deployment of other medical officers, i.e., on the basis of troop strength in the area involved. In consequence, these persons were committed and assigned in anticipation of casualty and sickness workloads which frequently failed to materialize. Wastage of their professional skills and time were inevitably associated with the practice of identifying these persons as intrinsic components of specific theaters, regions or units. Such wastage could hardly be obviated without a major revision of operating procedures. Recognition of the specialist as a distinct entity in the organizational sense would correct this condition. Small teams or even individuals might be designated as reenforcements for regional or unit staffs, and shuttled within a theater, between theaters or between theaters and the Zone of Interior by air or other rapid transportation as the actual need for specialists developed. This plan, while not new, was never implemented because the creation of special groups not subject to the general policies with regard to the duration of the overseas tour is always opposed from the point of view of personnel administration and favoritism. However, if the shortage of the specialist categories is as serious as has been emphasized in certain quarters, it would appear that these considerations are of a magnitude sufficient to warrant the special handling which is proposed for this group.

If these economies which I have mentioned are accepted and implemented throughout the armed forces, or others of a similar nature, it is my belief that the services will never again be accused of wasting doctors, dentists or nurses in any subsequent emergency and will not be overstaffed with medical talent at the expense of the civilian population.

While I have discussed a number of the considerations bearing on medical service in

the military establishment, I should prefer to make no recommendations with respect to the type of medical organization which should be associated with the civilian defense agency. It is apparent, though, that its successful operation would doubtlessly require a form of universal service applicable to the medical profession, a subject which would better remain in the capable hands of the American Medical Association and, specifically, the Council on Emergency Medical Service. The implications of such a compulsory system are staggering and even frightening, yet in the last analysis they are not so far removed from the selective service that we knew in World War II.

CONCLUSION

I should like to mention the activities of the Hawley Board in connection with the organization of the medical service in the National Defense Establishment. For some months the Board has been concerned with the development of a more efficient system for the medical care of our military components. I believe that substantial economies may be demonstrated through the application of the principles of joint and cross servicing in the fields of medical meteriel and personnel procurement, through the utilization of research and training facilities and through the elimination of duplicating hospital installations. At the same time, it is apparent to all that the efficient medical support of Army, Navy or Air Force in actual combat requires the close identification of the operating elements and components of the medical service with the command structure of the major force involved. The establishment of an Air Force medical service to provide the troop unit and station level medical attendance required by the Air Force and to participate jointly with the medical departments of the Army and Navy in the operation of the larger hospital installations and various medical overhead functions would be the logical corollary of this concept. Certainly the recommendations of the Hawley Board will embrace a number of revolutionary changes, all of which, I hope, will represent steps toward the creation of an efficient and attractive medical establishment within the armed forces which will reflect the fine tradition and ever superior standards of American medicine.

Second Era of Research in Chemotherapy.—During the past dozen years we have all witnessed the impact on medicine of what Sir Henry Dale has called the second era of research in chemotherapy, as manifested practically in the unparalleled usefulness of the sulfonamides, penicillin, and the newer antimicrobic drugs, and theoretically in the impetus which their discovery has given to new thought and experimentation on the metabolism of parasitic cells, the mechanisms of drugfastness, and the general principles of chemotherapy. Great as these achievements are, they were exceeded, in my opinion, by the attainments of bacteriology in the final quarter of the 19th century.—Kidd. John G., *Bulletin of the Johns Hopkins Hospital*, June 1948.

ROENTGEN DIAGNOSIS OF MYOCARDIAL INFARCTION

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The clinical diagnosis of major infarction resulting from coronary insufficiency or occlusion is usually reliable, especially when confirmed by the presence of suitable electrocardiographic changes, slight fever, leukocytosis and an increased sedimentation rate.[1] However, there are some cases in which the clinical diagnosis is in doubt and in which additional data are desirable or essential for confirmation. Such cases include those with (*a*) an indefinite or atypical history, with or without positive electrocardiographic findings, (*b*) a definite history but negative or inconclusive electrocardiographic findings and (*c*) no definite history but apparently positive electrocardiographic findings.

Infarction in the "acute" stage is essentially a problem for clinical diagnosis; the patient can rarely be moved for roentgen studies and the electrocardiogram is usually positive. Infarction in the healing or "healed" phase is often a problem for joint clinical and roentgen examination; the electrocardiogram has not infrequently reverted to normal or become nondiagnostic.[2] It has been estimated that about 18 per cent of patients with verified coronary occlusion have negative electrocardiographic findings, as such are ordinarily made and interpreted.[3] It is in this group particularly that kymographic examination may be of value.

In view of the fact that "coronary artery disease, with the possible exception of cancer, is now responsible for more fatalities than any other disease",[4] the vast import of infarction is apparent. That infarction is no respecter of age is illustrated by Newman's recent report of a series of 50 cases of

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This paper is based principally on cases seen at the United States Naval Hospital, Oakland, Calif., while the authors were attached thereto during the years 1944 to 1946. The opinions expressed are those of the writers and not to be considered as reflecting the views of the Navy Department. Dr. Garland is Associate Clinical Professor and Dr. Thomas is Clinical Instructor in Radiology, Stanford University Medical School.

1. Blumgart, H.L.; Schlesinger, M.J., and Davis, D.: Studies on Relation of Clinical Manifestations of Angina Pectoris, Coronary Thrombosis, and Myocardial Infarction to Pathologic Findings, with Particular Reference to Significance of Collateral Circulation, Am. Heart J. 19:1-91 (Jan.) 1940.

2. Selzer, A.: Recent Trends in Electrocardiography, Stanford M. Bull. 4:7-15 (Feb.) 1946.

3. Dock, W.: Personal communication to the authors.

4. Master, A.M., and Auerbach, O.: Acute Coronary Insufficiency, U.S.Nav.M.Bull. 47:226-237 (March-April) 1947.

coronary occlusion occurring in young robust adults under 36 years of age (all but one of them male); most of these cases showed extensive myocardial damage.[5] In this age group the kymographic method can be a most useful adjunct in diagnosis

METHOD

Roentgen examination of the heart for the determination of myocardial damage involves fluoroscopic and roentgenographic examination and, in some instances, roentgen cardiac kymography. The fluoroscopic detection of severe myocardial damage is not difficult, but is prone to the limitations of subjective impression and provides no record which may be reviewed at a later date or studied by others. Sosman, Levene and others have ably described the criteria for the fluoroscopic diagnosis of heart disease, and full information can be obtained from their publications. The silhouette is studied as to size, shape, position and motion. Areas of myocardial damage are suggested by localized abnormalities of curvature and motion (flattening and diminished excursion of the ventricular wall or, less commonly, bulging and paradoxic expansion).

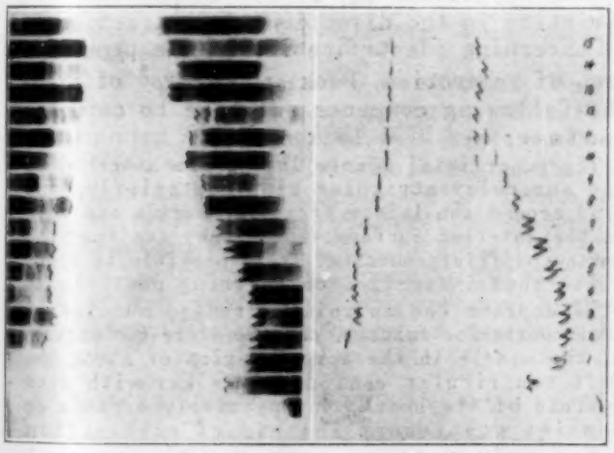

Fig. 1.—Roentgenkymogram of healthy adult 30, with tracing to illustrate the various types of waves normally present over the cardiovascular silhouette. The numbers refer to the individual "frames" above the left hemidiaphragm: 15 to 10 on left of tracing, pulsations of superior vena cava, 9 to 5, right auricle, and 4 to 3, right ventricle; 15 to 12 on right, descending aorta; 11 to 10, pulmonary artery; 9, ascending aorta, and 8 to 1, left ventricle. Posteroanterior view.

Cardiac kymography is usually performed with the multiple slit kymograph, using 12 to 1 grid ratio. Films are made in whatever projection is deemed most liable to demonstrate the involved area of myocardium, usually in the posteroanterior and left anterior oblique positions; occasionally in right anterior oblique (left anterior oblique, 65 degrees; right anterior oblique, 45 degrees). Technical factors vary with the patient's build and pulse rate; most cases are satisfactorily handled with these factors: 85 kilovolts, 100 milliamperes, 48 inch (121.9 cm.) target-film distance, one and one-half seconds' time,

5. Newman, M.: Coronary Occlusion in Young Adults, Lancet 2:409-411 (Sept. 21) 1946.

Fig. 2.—Posteroanterior kymogram of man aged 46. Note absence of normal waves in frame number 4 above the left hemidiaphragm ("silent" frame); and the reversed pattern in frames 5 to 7 ("paradoxic" motion). Roentgen diagnosis was myocardial damage, presumably infarction, involving the wall of the left ventricle. The patient was a physician with a clinical diagnosis of infarct, but questionable electrocardiogram. Autopsy verification three weeks later.

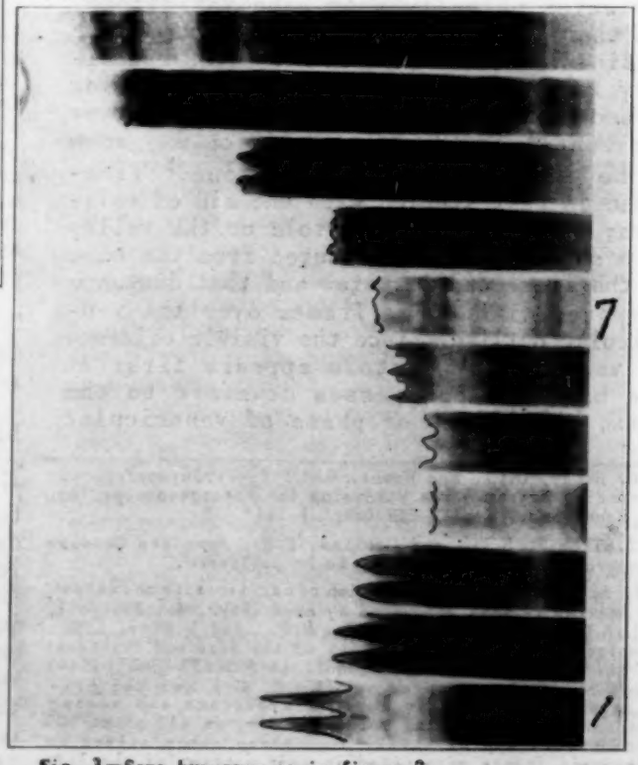

Fig. 3.—Same kymogram as in figure 2.

moderately deep inspiration. In questionable cases the film may be repeated, perhaps in a different phase of respiration, or with the slits turned to an angle other than the horizontal. Frames with diminished, absent or para-

doxic ventricular waves are usually indicative of myocardial disease.

ROENTGEN KYMOGRAPHY

Roentgen kymography is a method for recording the movements of an organ on a single film. There are several possible technics, but we will confine our remarks to multiple slit kymography at this time. The electrokymograph of Henny and Chamberlain[6] may offer aid in this problem, but to date its value in clinical work is still unpublished.

Multiple slit kymograms are records of one component of the movement of the organ under survey, the only motion accurately registered being that which occurs in a direction parallel to the slits. By turning the slits to various angles one may record the motion of different portions of the organ. For purposes of myocardial wall study, horizontal slit kymograms are usually adequate, since the majority of infarcts occur in those portions of the ventricles which are near the anterior interventricular groove. Even when not located near the left cardiac border, infarcts tend to cause variable degrees of "splinting," with restricted or irregular contractions of that border, and such abnormal contractions are usually detectable in routine posteroanterior kymograms.

The individual kymographic waves are examined as to amplitude, shape and time-phase. The amplitude and shape of ventricular waves normally show wide variations, and therefore apparent alterations must be critically evaluated.[7] This applies especially to waves near the apex, where, owing to occasional predominance of vertical over horizontal contractions, motion may seem to be absent in healthy persons.[8] Time-phase is best studied with the aid of calipers; the peak of a diastole or the valley of a systole may be measured from the base of the frame under review and that distance compared with other frames over the ventricular outline. Since the visible evidence of ventricular systole appears first at the base and progresses downward to the apex, the timing or phase of ventricular waves varies a very slight amount over the ventricular border.

If serial films are made for comparison, it is essential that they be made in identical phases of respiration, with similar time exposures and with smoothly moving films, since the shape and amplitude of the waves are profoundly influenced by variation in these factors.

The amplitude of ventricular wall movement is diminished in myocardial disease (including infarction, pronounced enlargement, hypothyroidism, thiamine deficiency, severe infections and cardiac neoplasm), and in certain pericardial disorders (effusion and adherent scars). A negative kymogram does not exclude the presence of an infarct. The most reliable positive kymographic sign of infarction is the presence of either paradoxic motion or an immobile area between two zones of normal motion. The most common signs are systolic expansion and absence of motion over the lower half of the left ventricular border. When limited to the apex, this should be confirmed by films made in other positions or in expiration or on succeeding days. Restricted movement at the apex alone may be due to physiologic variation in the direction of contractions.

Concerning identification of the probable area of infarction, Dack and others[9] offered the following comments relative to cardiac anatomy:

> The superficial muscle layers are attached to the auriculoventricular ring posteriorly, and wind around the left ventricular margin and apex to the anterior surface, where they are inserted in the papillary muscles. It is possible to speculate that infarction or scarring posteriorly will deprive the spirally arranged muscles of their posterior fulcrum, and therefore the portion of the muscle in the apical region or along the left ventricular contour gives way with each systole of the heart, and passively expands or remains stationary instead of contracting.

For this reason, perhaps, the area of "infarction" in the kymogram does not always coincide with the postmortem location of the infarct.

A "positive" kymogram may occasionally be found in patients with no clinical symptoms of myocardial infarction. This may be due to the presence of a silent infarct, or, occasionally, to unexplained physiologic variations in cardiac movements; myocardial tumors and localized adherent pericardial scars may cause similar changes. The differential diagnosis of extensive infarction from diffuse myofibrosis or muscle infiltration may be impossible on kymographic grounds alone. Generalized diminution of contractions and other changes may occur in all these conditions. However, localized infarction will usually show localized alterations (especially systolic expansion) which are relatively characteristic. Areas of

6. Henny, G.C., and Boone, B.R.: Electrokymograph for Recording Heart Motion Utilizing the Roentgenoscope, Am. J. Roentgenol. 54:217-229 (Sept.) 1945.

7. Thomas, S.F., and Garland, L.H.: Roentgen Cardiac Kymography, California Med., to be published.

8. As part of an investigation of cardiac size and output in healthy persons conducted by Keys (Keys, A.; Friedell, H.L.; Garland, L.H.; Madrazo, M.F., and Rigler, L.G.: Roentgen Kymographic Evaluation of the Size and Functions of the Heart, Am. J. Roentgenol. 44:805-833 [Dec.] 1940) some years ago, one of us (L. H. G.) had the privilege of making a few hundred kymograms and seeing the analysis of several more, totaling in all about 500 persons. In approximately 5 of these cases silent or paradoxic frames were noted in some portion of the left ventricular area. These were never constant on recheck, and the amplitude of waves in adjacent frames was usually excellent (about 4 mm.). Nevertheless, their occurrence necessitates the observation that "pseudo infarcts" or inexplicable aberrations of motion do occur in about 1 per cent of healthy persons. The examinees' ages ranged from 13 to 36; most were about 22 years old and were college athletes!

9. Dack, S.; Sussman, M.L., and Master, A.M.: Roentgenkymogram in Myocardial Infarction: Clinical and Electrocardiographic Correlation, Am. Heart J. 19:464-474 (April) 1940.

infarction have been followed for periods of several months and seen to return to normal pulsation in some cases—which is plausible in view of clinicopathologic opinion that about 25 per cent of infarcts heal completely. Sussman[10] reported such change in 17 per cent of a group followed for two years. Penner and Peters[11] reported a case of proved ventricular aneurysm in a man of 43 who survived fifteen years!

The location of the area of infarction does not always coincide with the area of abnormal motion seen in the kymogram. The infarct may be remote from the recorded segments but reveal itself by associated "splinting" of muscle contractions. Paradoxic movement does not require the presence of ventricular aneurysm: if one segment of the heart is immobile while the remainder of the ventricle contracts, that segment may show systolic expansion.

The probable age of the infarct cannot be determined from a single kymogram. The kymographic changes in cases of recent infarction are in general rather similar to those in cases of old infarction. A minority of cases of acute infarction will show *(a)* no immediate changes but changes developing after four to twelve weeks, or *(b)* immediate changes, with gradual improvement and return to normal after several months.[10]

In summary, the positive kymographic findings in myocardial infarction are *(a)* localized diminution or absence of pulsation, *(b)* systolic expansion or paradoxic pulsation, *(c)* partial systolic expansion or pronounced diastolic irregularities. Negative kymographic findings do not exclude the possibility of infarct but appear to occur in less than 30 per cent of cases. Positive roentgen findings are most frequent in cases of severe or extensive muscle damage.

INDICATIONS FOR ROENTGEN KYMOGRAPHY

The electrocardiograph is so far superior to the kymograph for the detection and confirmation of myocardial infarction that the question arises, "When should one employ roentgen kymography?" We believe that it is indicated when the clinical diagnosis is in doubt or the electrocardiographic findings are lacking or equivocal in a patient with symptoms of coronary disease or coronary insufficiency.[12] It may be useful in the prognosis of some atypical cases, since the degree of kymographic change or abnormality usually parallels the extent or severity of infarction. Furthermore, it has been shown that the kymogram is often more reliable in designating the severity of the infarct than is the electrocardiogram.[9] Therefore the kymogram has greater potential prognostic significance than the electrocardiogram.

RELIABILITY OF ROENTGENKYMOGRAPHIC DIAGNOSIS

In experienced hands, we believe that the method is reliable. Positive kymographic findings have been reported in as high as 91 per cent of a series of cases of proved myocardial infarction.[13] Sussman and others[10] reported positive findings in 75 per cent of 200 clinically definite cases of infarction. Others reported such findings in 71 per cent of cases.[14] In our own hands we have found positive findings in about 66 per cent of cases with clinically definite lesions. However, we have also encountered a few instances (we believe about 1 per cent of all cases examined) of inexplicably silent frames in healthy young persons. None of these could reasonably be attributed to localized infarction or adherent pericardial scar. Their explanation remains obscure, and their finding a reminder that no test is 100 per cent decisive. They may have been due to anomalous but physiologic pendulum or other movements.

CORRELATION OF KYMOGRAPHIC AND ELECTROCARDIOGRAPHIC FINDINGS

In this particular study roentgen kymograms were made in over 350 cases of various suspected or known cardiac disorders, ranging from mild functional disturbances to frank coronary disease; of these, 275 are available for review. For 249 of the patients satisfactory electrocardiographic tracings were made. To test the reliability of kymography it was decided to use the electrocardiogram as an accepted aid for the diagnosis of cardiac disorders and then to match the kymograms against that method. The majority of the electrocardiograms were made with a Cambridge "simplitol" instrument, standard limb leads and the 4 F being used. The interpretations were made by experienced cardiologists, most of them having been done by Dr. (then Lieut. Commander) Maurice Sokolow, who gave us advice and assistance.

For purposes of analysis, the actual reports as sent for the patient's charts were reviewed and classified as "positive," "negative" or "questionable." In the case of the electrocardiograms such conclusions as "left ventricular strain," "myocardial damage," and "coronary disease" were classified as positive; the phrase "tracing within normal limits" was recorded as negative; borderline interpretations were labeled questionable. Similarly, in the case of the roentgenologic reports, "myocardial abnormality" or "paradoxic motion" was classified as positive;

10. Sussman, M.L.; Dack, S., and Master A.M.: Roentgenkymogram in Myocardial Infarction: Abnormalities in Left Ventricular Contraction, Am. Heart J. 19:453-463 (April) 1940.

11. Penner, S.L., and Peters, M.: Longevity with Ventricular Aneurysm, New England J. Med. 234:523-526 (April 18) 1946.

12. Dack, Sussman and Master.[9] Garland, L.H.: Myocardial Infarction: Roentgen Diagnosis, U.S. Nav. M. Bull. 45:89-96 (July) 1945.

13. Gubner, R.; Crawford, J.H.; Smith, W.A., and Ungerleider, H.E.: Roentgenkymography of Heart: Its Clinical Applications and Limitations, Am. Heart J. 18:729-746 (Dec.) 1939.

14. Master, A.M.; Gubner, R.; Dack S., and Jaffe, H.L.: Form of Ventricular Contraction in Cardiac Infarction: Fluoroscopic Studies, Proc. Soc. Exper. Biol. & Med. 41:89-94 (May) 1939.

apparently normal reports as negative and indecisive reports as questionable. We realize that more specific designation of the electrocardiographic patterns might be desired by cardiologic readers, but space does not permit such excursion herein. The interpreters were experienced cardiologists and their conclusions were used as a base line.

The two methods correlated in 201 cases (80.5 per cent), and failed to do so in 48 (19.5 per cent). Analysis of the latter disclosed that failures were made in a "positive kymographic and negative electrocardiographic" fashion and vice versa fourteen times, thus leaving 34 cases in which there was no adequate explanation. However, in this group of 34 cases, it was found that 28 had questionable elements in the interpretation of the electrocardiographic tracing or the kymographic film (table 1).

Therefore, the actual aid that either one of these tests might be to the other is greater than the figures suggest. In other words, when one of these tests was positive and the

TABLE 1.—*Correlation of Kymograms and Electrocardiograms in the Diagnosis of Myocardial Disease (249 Cases)**

Kymogram	Electrocardiogram	Cases	Percentage
Positive	Positive	28	11.3
Negative	Negative	146	58.4
Questionable	Questionable	27	10.8
Total Correlated		201	80.5
Kymogram	Electrocardiogram	Cases	Percentage
Negative	Positive	8	3.3
Positive	Negative	12	4.8
Positive	Questionable	3	1.3
Questionable	Positive	5	2.0
Questionable	Negative	8	3.3
Negative	Questionable	12	4.8
Total Failure of Correlation		48	19.5

*The kymograms were made within three to five days of the electrocardiograms in the vast majority of instances. The cases included miscellaneous types of cardiac disease or disorder, not exclusively infarctions. The designation of various electrocardiographic and roentgen patterns as positive or negative is explained in the text.

TABLE 2.—*Correlation of Kymograms and Electrocardiograms in Diagnosis of Myocardial Infarctions (58 Cases)*

Kymogram	Electrocardiogram	Cases
Positive	Positive	19
Negative	Negative	5
Questionable	Questionable	9
Correlation		33 = 56.8%
Kymogram	Electrocardiogram	Cases
Negative	Positive	4
Positive	Negative	10
Positive	Questionable	3
Questionable	Positive	3
Questionable	Negative	3
Negative	Questionable	2
Failure of Correlation		25 = 43.2%

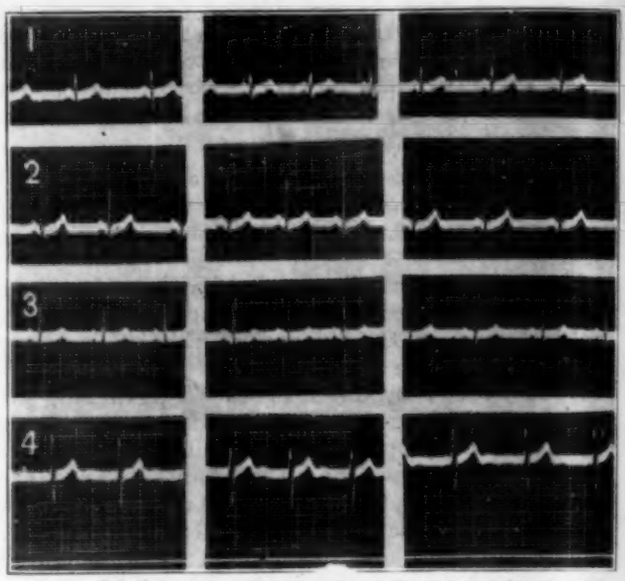

Fig. 4.—Example of negative electrocardiogram in myocardial infarction. Three sets of electrocardiograms made on different dates (from left to right, Dec. 30, 1944 and Jan. 1 and Jan. 3, 1945) were all reported by the cardiologist as within normal limits; normal series rhythm; rate 74 to 93; P-R 0.13 to 0.12; QRS 0.08 to 0.07 second. The roentgenkymogram (fig. 5) was indicative of severe myocardial abnormality. The clinical diagnosis was coronary occlusion with infarction.

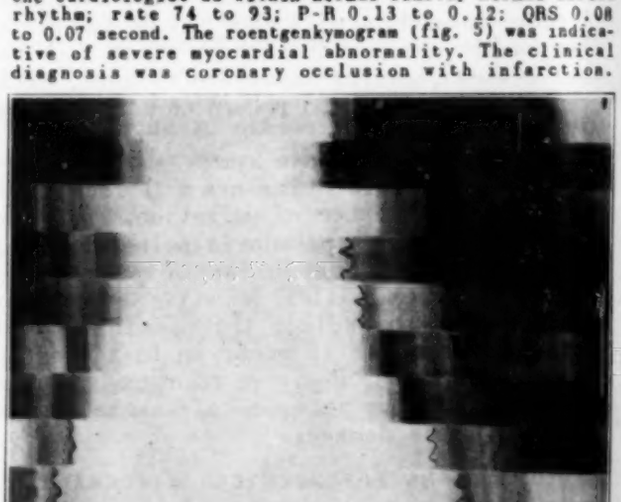

Fig. 5.—Posteroanterior kymogram of man aged 36. Note the poor amplitude of the waves over the entire left side of the heart and over the lower half of the right. These findings were also present in both the left anterior oblique and the right anterior oblique projections. Roentgen diagnosis was myocardial disease, severe, probably infarction. Clinically the patient had substernal pain and dyspnea, but his electrocardiogram was negative (fig. 4). He was allowed to go on leave. After he had sprinted to catch a train his attacks recurred. The electrocardiographic findings then showed changes indicative of myocardial disease. Final clinical diagnosis was coronary occlusion with infarction.

other questionable, one acted to confirm the other. Conversely, when one was negative and the other questionable, it was more likely that the negative result was correct. This might be expressed as an equation (K being used for kymograph and E for electrocardiogram):

E (or K) Positive + K (or E) Questionable = Probable infarct

E (or K) Negative + K (or E) Questionable = Probably no infarct

If this is conceded, we resolve 28 of the cases in which there was failure of correlation of the two methods. The other 20 cases cannot be adequately explained in the light of our present knowledge. However, even if there were no adequate explanation for these, it is evident that the over-all result would be an error of less than 10 per cent, which in clinical work must be regarded as indicating a relatively reliable method of examination.

KYMOGRAPHIC FINDINGS IN CASES WITH INFARCTION

In 58 cases with a clinical diagnosis of infarction positive or probable kymographic changes were noted in 47 (or 81 per cent). In 10 of these 58 cases the electrocardiogram was negative when the kymogram was positive. It was in this small group that the method proved of real diagnostic and sometimes of decisive value. We say "sometimes" because of the fact that although electrocardiograms were negative in all 10, the clinical history or associated findings were so clearcut as to be diagnostic in at least 5 of them.

REPORTS OF CASES

The following cases are illustrative of the findings noted in this group:

CASE 1.—A white man, aged 48, had a clinical diagnosis of coronary occlusion. The electrocardiogram was reported as questionable. Kymograms were positive for extensive myocardial abnormality, presumably infarction of the left ventricle. (Figs. 2 and 3). This patient, a physician, had precordial distress on effort for about four weeks and paroxysms of tachycardia. Roentgenoscopy disclosed a moderately enlarged heart, with localized bulging of the midportion of the left lateral border and systolic expansion (ventricular aneurysm). A subsequent electrocardiogram was reported as "intraventricular conduction defect with changes indicative of infarction." He died nine days after entry. Autopsy disclosed that the lateral wall of the left ventricle was soft and mushy, with adherent thrombus, secondary to old myocardial infarct.

CASE 2.—A white man, aged 36, had a clinical diagnosis of possible myocardial disease (substernal pain and dyspnea being the complaint on admission. Electrocardiograms were repeatedly negative (fig. 4). Kymograms were positive for myocardial abnormality (fig. 5). Repeat kymograms confirmed the presence of waves of poor amplitude, with one area of splintering and one area suggestive of parodoxic movement in the third frame above the left leaf of the diaphragm. On this basis, a roentgenkymographic diagnosis of myocardial infarct was made.

However, because of the slim clinical and negative electrocardiographic findings, the patient was allowed to go on convalescent leave and returned to his home in New York. While running to catch the train for his return trip, he suffered a severe stabbing pain in the anterior part of his chest which lasted for almost an hour; he had at least

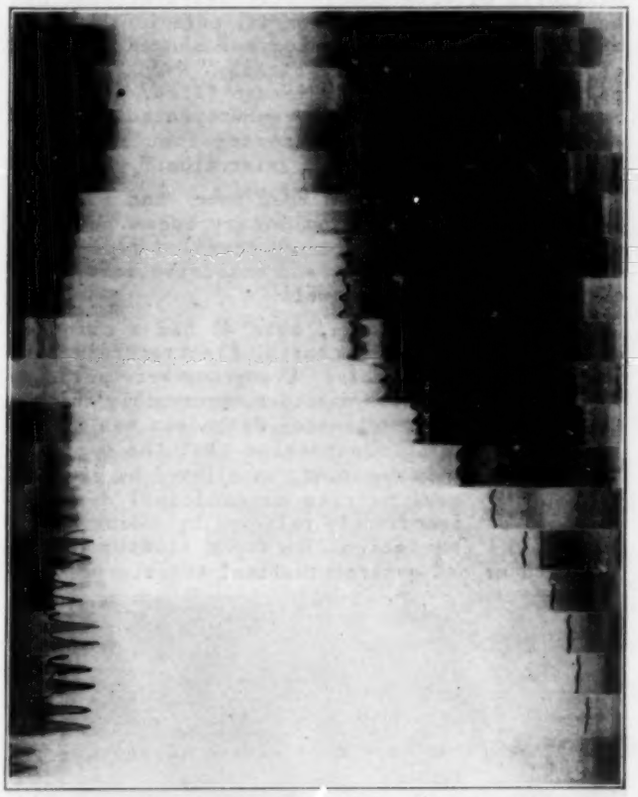

Fig. 6.—Posteroanterior kymogram of man aged 65. Note the shallow or paradoxic pulsations over most of the left ventricular border due to myocardial infarction. The electrocardiogram was negative at time of this roentgenkymographic study. There was verification at autopsy three weeks later (old and recent left ventricular wall infarcts).

Fig. 7.—Left anterior oblique kymogram of same patient as in figure 6.

two similar attacks during the journey. Subsequent electrocardiograms showed progressive changes. The final clinical diagnosis was myocardial infarction.

CASE 3.--A white man, aged 65, with clinical diagnosis of arteriosclerotic heart disease had had recent attacks of nocturnal pain in the chest and dyspnea. Electrocardiograms showed evidence of "chronic ventricular strain." Kymograms were positive for myocardial damage (figs. 6 and 7). Subsequent electrocardiograms repeatedly showed evidence of "chronic coronary insufficiency, without evidence of recent infarction."

The patient was discharged home, but returned after some weeks with pulmonary edema. He died shortly thereafter. Autopsy revealed recent and old coronary thromboses and extensive infarction of the left ventricular wall.

CASE 4.--A white man, aged 48 had a clinical diagnosis of angina pectoris. Electrocardiograms were repeatedly negative. Kymograms were positive for severe myocardial disorder, presumably infarction (fig. 8). The clinical diagnosis was reconsidered following observation that the distress was epigastric in location, unrelieved by glyceryl trinitrate, amyl nitrite or medicinal doses of alcohol, but immediately relieved by sodium bicarbonate and eructation. Roentgen studies of the gallbladder and gastrointestinal tract gave negative results. He gradually resumed exercise, could walk on level ground without distress and after four weeks was anxious to return to his light duties as a training school supervisor. He felt so well that, in view of the negative electrocardiographic findings, the clinician doubted that he had any significant myocardial lesion.

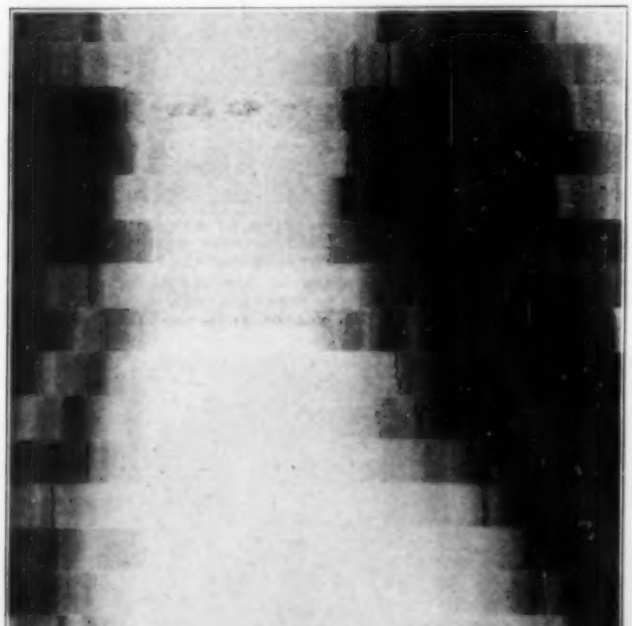

Fig. 8.—Posteroanterior kymogram of man aged 48. Note the poor amplitude of waves over most of the left ventricular border, with reversed pulsation in frames 3 to 5 above the left hemidiaphragm (infarction). The electrocardiogram was negative. The clinical history was questionable. Patient was released from hospital for ambulatory convalescence at home. Acute substernal pain developed within twenty-four hours of his departure from the hospital. Autopsy next day disclosed acute and recent infarction.

Repetition of the kymograms five weeks after entry confirmed the presence of "waves of poor amplitude over portion of the left ventricular margin, consistent with localized infarction." A repeat electrocardiogram next day showed some change, principally in the fourth precordial lead, which now revealed slight depression of the ST segment and inversion of the T wave. Until this second electrocardiogram became available, the only direct evidence of myocardial infarction was the kymographic. Indeed, the patient's second referral note to the radiologist read "Please repeat the kymographic study. The cardiac diagnosis hinges entirely on your findings."

The patient continued feeling well and was allowed to leave the hospital to subsist at his nearby home, pending completion of a discharge under the diagnosis of angina pectoris. On the evening after his departure he was awakened at 10 p. m. with severe epigastric pain; he took glyceryl trinitrate without relief and then sodium bicarbonate with some relief. He slept again until about 1 a. m., when he awoke with exquisite pain in the chest, went into shock, became pulseless and died in less than an hour.

Autopsy on the following day disclosed patchy coronary sclerosis, with thrombosis of the interventricular branch of the left coronary artery as its origin. There was extensive fresh infarction of the lower part of the interventricular septum and portion of the anterior wall of the left ventricle. There was older scarring of the posterior surfaces of the right ventricle near the apex.

SUMMARY AND CONCLUSIONS

The roentgen kymographic criteria suggestive or indicative of myocardial infarction are outlined. It is shown that roentgenkymography is a useful adjunct in the diagnosis of myocardial infarction, especially of "subacute" "healed" infarcts (particularly in cases with equivocal or negative electrocardiographic findings). It permits a permanent record of ventricular contractions. Ten cases are reported in which the kymographic findings led to a correct diagnosis of infarction, despite negative electrocardiographic or indefinite clinical findings. These constituted approximately 17 per cent of the cases of myocardial infarction studied in this series. The correlation of roentgenkymographic and electrocardiographic findings in the entire group of 249 cases with miscellaneous types of cardiac disorders was 80.5 per cent.

ABSTRACT OF DISCUSSION

DR. PHILIP J. HODES, Philadelphia: Drs. Garland and Thomas have reemphasized the importance of kymography in the diagnosis of myocardial infarction. They stressed the significance of paradoxic cardiac pulsations and splinting of the cardiac silhouette in this condition. They reminded us that negative kymograms do not exclude the presence of myocardial infarcts. Conversely, recognizing the pitfalls inherent in the method, the authors reviewed the false positive kymograms produced by normal vertical contractions of the heart near its apex as well as the abnormal contractions occasionally seen in systemic disease or cardiac diseases of other than vascular orgin. Whereas the authors

did not discuss posterior cardiac infarcts specifically, I am sure that they appreciate the limited value of kymography in these lesions. This is due to the fact that the left ventricle, lying low on the left hemidiaphragm, is seen with difficulty in the lateral view, where it is obscured by the higher lying right hemidiaphragm and the liver, which makes it difficult to record changes in the posterior portion of the left ventricle kymographically. Much more easily found are the anterior, anterolateral and lateral lesions. No one can question the importance of kymography for the patients whose records have just been called to our attention. The authors were faced with a group of persons suspected of having cardiac disease but in whom the diagnosis was not established until Drs. Garland and Thomas submitted their kymographic data. There is evidence, however, that had four or more electrocardiographic precordial leads been used by the cardiologist instead of the one precordial 4 F lead utilized, the diagnosis might have been made in these patients by the cardiologist without kymography. All the more credit is due the authors, as well as kymography, because both were put to the test and met the challenge successfully. No discussion of this subject would be complete without reference to the electrokymograph recently discovered by the Chamberlain group of the Temple Medical School, which includes Dr. George Henny and Dr. Boone. It is hoped that their method of amplification and the other amplifying methods that stem from their original work will eventually make the diagnosis of myocardial infarction more easy and reliable.

DR. W. EDWARD CHAMBERLAIN, Philadelphia: I have recently had a pleasant surprise in that my expectations in regard to the electrokymograph have not been fulfilled in the direction that I expected. I had thought that I would be able to get along without roentgenkymography after the advent of electrokymography. After all, roentgenkymography is to electrokymography as big letters on a blackboard are to rather fine print. So it was with some surprise and some satisfaction, in view of the beautiful work done in roentgenkymography and the literature, added to today by Dr. Garland, that I find roentgenkymography is here to stay. I think that electrokymography will increase the value of roentgenkymography because it gives one many points on the heart boards. I am using roentgenkymography more than ever before. I should like to ask Dr. Garland if he would reduce the percentage of agreement to 70 per cent from the 80.5 per cent he gave, simply because I do not like to see in the 80.5 per cent of agreement the 10.5 per cent in which kymography was questionable. I would believe the real percentage would be 70 per cent, and that would be much closer to what we have obtained on myocardial infarction as we find it with the kymograph.

DR. L. HENRY GARLAND, San Francisco: In reply to Dr. Hodes' kind discussion, I cannot agree completely with him. Often one gets a positive kymograph because of "splinting." I do agree that infarction should not be excluded without multiple projections, and conversely that an attempt should be made to confirm kymographic findings with the electrocardiograph. In reply to Dr. Chamberlain's suggestion concerning reduction of the percentage agreement, I wish to point out that Dr. Thomas consulted Professor Weymouth of Stanford University and received his assurance that the figures given were valid and significant. Some of the cases which best illustrated the value of kymography were those with no clinical evidence of infarction, but with kymographic and autopsy proof of such. However, I do not wish to insist on verification at autopsy, since it is known that myocardial ischemia may result from coronary disease and sometimes give clinical and electrocardiographic evidence of infarction without postmortem demonstration of such.

ACTINOMYCOSIS OF THE CENTRAL NERVOUS SYSTEM

A Case of Meningitis with Recovery

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and
RALPH B. CLOWARD, M.D.
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The invasion of the central nervous system by the mold Actinomyces is rare. Ford [1] stated in 1937, "There are now 40 cases on record in which the nervous system has been invaded by the ray fungus. All reported cases have been fatal; no treatment is of any value." Friedman and Levy [2] after an extensive review of the literature found that 108 cases had been reported. Two more cases of actinomycotic meningitis have been added to the literature since this report [3] (1941). When the disease attacks the central nervous system, it is universally considered to be 100 per cent fatal. No case of recovery has as yet been reported.

Actinomycosis occurs in the central nervous system usually as a direct extension of an infection about the head; i. e., the upper jaw, the sphenoid sinuses or the mastoid. The nasopharynx has been suspected as a possible source of the original infection.

The organisms, however, can be transmitted through the blood stream. "Primary" infections in the brain are those in which no other lesion can be found outside the central nervous system. Twenty-three such cases were found by Friedman and Levy. Zeitlin and Lichtenstein [4] (1937) reported a case of brain abscess due to actinomycosis. They found a microscopic focus of infection in the body which they thought was primary. Most authors believe that the "primary" cases are those in which the original focus has either healed or has not been discovered.

LITERATURE

The literature on actinomycosis of the central nervous system can be divided into the reports published prior to the advent of chemotherapy (1937) and those appearing since. The most complete report by Friedman and Levy [2] (1936) reviews the entire medical literature on the subject up to that time. One hundred and eight cases were found, and 90 of these are briefly summarized by the authors. The average case shows thick pus in the spinal fluid with high cell counts, predominantly polymorphonuclear leukocytes; sugar is absent. The temperatures range from 101 to 102 F. The patients do not appear as toxic as would be expected from the abnormalities noted in the spinal fluid. There is usually paralysis of several cranial nerves. The white blood cell count ranges from 17,000 to 25,000. Sudden, unexpected death in a patient who seems not too acutely ill is characteristic of the disease.

Clinical Director of the Territorial Hospital (for the Mentally Ill), Kaneohe, Oahu, Territory of Hawaii (Dr. Jacobson) and Neurosurgeon, The Queen's Hospital, Honolulu, Territory of Hawaii; Consultant, Neurology and Neurosurgery, The Territorial Hospital, Kaneohe, Oahu, Territory of Hawaii (Dr. Cloward).

1. Ford, F. R.: Diseases of the Nervous System in Infancy, Childhood and Adolescence, Springfield, Ill., Charles C Thomas, Publisher, 1937.

2. Friedman, E. D., and Levy, H. H.: Actinomycotic Infection of Central Nervous System: Report of Case and Review of Literature, Internat. Clin. 2: 36-61 (June) 1937.

3. Eekhoff, N. L.: Actinomycosis of Central Nervous System; Report of Two Cases, Lancet 1: 7-8 (Jan. 4) 1941.

4. Zeitlin, H., and Lichtenstein, B. W.: Actinomycosis Abscess of the Brain, Arch. Path. 23: 58-66 (Jan.) 1937.

Friedman and Levy concluded their article by stating, "There is no treatment for the disease; all cases are fatal."

The following year (1937) the first case of systemic actinomycosis to be treated with the sulfonamide drugs was reported. Poulton [5] described a patient with actinomycosis of the abdominal wall who recovered with the use of sulfanilamide after all other methods of treatment had failed. A similar case was recorded by Miller and Fell [6] in 1939. Sudler and Johnson [7] reported 2 cases of cervicofacial involvement cured with sulfanilamide. Other cures of abdominal actinomycosis with the sulfonamide compounds were reported by Ogilvie [8] (1940) and Dorling and Eckhoff [9] (1940). The latter authors treated 5 patients with sulfanilamide and sulfapyradine with 4 recoveries and 1 death. They recommended giving two or three "courses" of treatment, each course consisting of 45 Gm. of sulfonamide drug, lasting one week, with a one week rest period between. They stressed the frequency of recurrence of the disease and the danger of regarding a remission as a cure.

Dobson and Cutting [10] (1945) reported the use of penicillin as well as sulfonamide compounds in treating 16 patients with actinomycosis. The disease was pulmonary in 3 patients, abdominal in 2 and cervicofacial in 11. In 7 of these patients the disease was considered arrested; 7 recovered and 2 died after intensive sulfadiazine and penicillin therapy. Penicillin was used alone and in combination with sulfadiazine. The authors concluded that both drugs are highly effective in the treatment of actinomycotic infection.

A recent report by Lamb, Lane and Jones [11] (1947) recognizes the value of the chemotherapeutic agents, but these authors were not as enthusiastic about the specific value of these agents as stressed by previous authors.

The last report of actinomycosis of the central nervous system was recorded by Eckhoff.[3] His 2 patients with basal meningitis both died after many months of illness.

It is the purpose of this communication to record the first case, as far as we are able to determine, of verified actinomycotic meningitis in which complete recovery followed adequate treatment with chemotherapy

REPORT OF CASE

A. B., an unmarried Japanese woman aged 28, was committed to the Territorial Hospital on March 22, 1947 with a diagnosis of manic depressive psychosis, manic type, "with atypical features of hysteria and at times schizophrenia."

The psychiatric history suggested a psychopathic heredity. One maternal aunt and one cousin had committed suicide. The patient had been raised in an environment of sexual promiscuity with the practice of prostitution by her mother and sister to a limited degree. The patient, at the age of 14, had worked in a teahouse where she was frequently subjected to the advances of men, but she insisted that she had repulsed them. The symptoms of her present mental illness had begun eighteen months before, when she became deeply concerned over her approaching marriage. In December 1946 she became overtalkative, distractible, sleepless and hyperactive. On admission to the Mental Hygiene Clinic of The Queen's Hospital for treatment, she was belligerent, resistive, combative and hyperactive. After ten electric shock treatments she improved, and treatment was continued in the outpatient department. In March 1947 she again became disturbed, and after showing no improvement from the treatment she was committed to the institution.

On admission to the Territorial Hospital, she exhibited much the same hyperactive, restless, resistive behavior with marked hysterical symptoms. She had numerous somatic complaints of headache, backache, pains in the neck and astasia abasia. She would fling herself to the floor saying that she could not stand or walk.

The physical examination revealed no significant abnormality. The only positive finding was a palpable mass about 1 cm. in diameter at the anterior border of the sternomastoid muscle at its midpoint. It was thought to be a lymph node. The patient stated that two years before this "lump" had appeared in her neck. It had been considerably larger and rather painful. She had had pains in the neck and occiput for which several physicians had been consulted, none of whom had considered the "lump" as being pathologic. She had been told that nothing was wrong. It could not be distinguished from a nonspecific lymphoadenopathy. (In the light of later developments, the possibility that this lesion represented the primary focus of the actinomycotic infection must be considered.) No biopsy of the node was made.

The neurologic examination was entirely normal. The fundus showed flat optic disks. No abnormalities of the lungs were found in the roentgenograms of the chest. Blood cell count and the urine were likewise normal. The examination of the spinal fluid on admission showed no cells, a negative Wassermann reaction and flat mastic curve with a total protein of 19 mg. per hundred cubic centimeters.

While in the hospital, except for the psychotic behavior which improved somewhat, the patient was physically well until May 8, 1947, when a temperature of 101 F. developed. She began to complain of backache and pains in her neck, more bitterly than her previous hysterical complaints. Examination disclosed positive Kernig and Brudzinski signs with tenderness and resistance to passive movement of the cervical muscles. The clinical diagnosis of meningitis was verified by lumbar puncture. The abnormalities noted in the spinal fluid were most surprising in view of the mild clinical symptoms. The spinal fluid was cloudy and contained 4,790 cells per cubic millimeter, 83 per cent of which were polymorphonuclear leukocytes. There was no sugar and a positive globulin reaction. The white blood cell count was 25,050. No organisms could be seen on direct smear of the spinal fluid.

She was immediately placed on penicillin, given intramuscularly, intravenously and intrathecally, and was given sulfadiazine by mouth. During the first week she received 45 Gm. of sulfadiazine and 2,500,000 units of penicillin—50,000 units, well diluted, were given daily intrathecally. Routine bacteriologic studies of the spinal fluid in the hospital laboratory had failed to disclose the organism, and a tentative diagnosis of tuberculous meningitis was considered. However, because of the high cell count, mostly polymorphonuclear leukocytes, further bacteriologic examinations were indicated. Accordingly, the spinal fluid was sent to the bacteriologic laboratory of the Territorial Board of Health, under the direction of Dr. Richard K. C. Lee, for further study.

The patient's clinical condition showed no improvement the first week. Regardless of chemotherapy the spinal fluid cell count rose from 4,000 to 7,000. Streptomycin was then added to the treatment. It was administered both intramuscularly and intrathecally. A total of 26 Gm. was given in six days. At one time all three chemotherapeutic agents were being administered simultaneously.

A bacteriologic report that the spinal fluid contained Actinomyces was received on May 15, 1947. The neurologic examina-

5. Poulton, E. P., cited by Dorling and Eckhoff.[9]

6. Miller, E. M., and Fell, E. H.: Sulfanilamide Therapy in Actinomycosis, J. A. M. A. **112**: 731 (Feb. 25) 1939.

7. Sudler, M. T., and Johnson, C. B.: Treatment of Actinomycosis with Sulfanilamide. Report of Two Cases, J. Kansas M. Soc. **40**: 330 (Aug.) 1939.

8. Ogilvie, W. H.: Abdominal Actinomycosis Treated with Sulphapyradine, Brit. M. J. **2**: 254-255 (Aug. 24) 1940.

9. Dorling, G. C., and Eckoff, N. L.: Chemotherapy of Abdominal Actinomycosis, Lancet **2**: 707-709 (Dec. 7) 1940.

10. Dobson, L., and Cutting, W. C.: Penicillin and Sulfonamides in Therapy of Actinomycosis: Report of Sixteen Additional Cases and in Vitro Tests of Susceptibility of Lectinomyces to Penicillin and Sulfadiazine, J. A. M. A. **128**: 856-863 (July 21) 1945.

11. Lamb, J. H.; Lane, E. S., and Jones, P. E.: Actinomycosis of Face and Neck, J. A. M. A. **134**: 351-360 (May 24) 1947.

tion on that day disclosed 4 to 5 D. of papilledema bilaterally, and weakness of both lateral rectus muscles. Other cranial nerves were normal. The neck was stiff. There was generalized muscular weakness and suggestive localized weakness of the left extremities. All tendon reflexes were absent; there were no pathologic reflexes. The patient's temperature remained between 101 and 104 F. daily. She was conscious and cooperative but listless and appeared toxic. The possibility of a brain abscess was suggested. A ventriculogram was done on May 16, 1947.

Through a single burr hole in the right frontal bone, the anterior horn of the ventricle was tapped with a brain needle, replaced by a no. 12 rubber catheter, which was sutured to the scalp and left in place. The brain was tight and bulged markedly through the small dural opening. The ventricular fluid, released under considerable pressure, was cloudy and contained 1,300 cells. Twenty cubic centimeters of fluid was removed from the ventricular system and replaced with oxygen. The lateral ventricles as seen in the roentgenogram were small, equal in size and shape and situated in the midline. The roentgen diagnosis was cerebral edema without brain abscess.

The ventricular catheter was opened and the ventricular fluid allowed to drain through it continuously for twelve days, relieving the intracranial pressure. Large doses of penicillin were continued intravenously during the first six days and replaced by sulfadiazine the second six days. The spinal fluid began to show improvement after the ventricular drainage was established. On May 22 there were 1,500 cells. The sugar appeared for the first time with 36 mg. per hundred cubic centimeters, and the cultures, which up to this time had all contained Actinomyces, were sterile.

The patient improved steadily; the septic temperature curve, which had remained above 101 F. for five weeks, gradually returned to normal. Sulfadiazine alone was continued the last three weeks, 45 Gm. being given weekly.

On June 5 she was considered clinically well. The spinal fluid was clear, the cell count 33, the sugar 92 mg. per hundred cubic centimeters, the total protein 35 mg. per hundred cubic centimeters and the mastic curve 34555. She was discharged from the hospital completely recovered from her mental illness as well as the meningitis and has remained well to the present time (Nov. 1, 1947).

COMMENT

The manner in which the chemotherapy was administered in this patient from the onset and throughout her illness may be criticized but, in the light of our present knowledge that we were treating a 100 per cent fatal disease, the intensive chemotherapy appears justified. Intensive treatment with sulfadiazine, penicillin and streptomycin was administered singly and in combinations, by every possible route. One cannot, therefore, state which drug was largely responsible for effecting the cure. Perhaps, the combination of two or more may have been more effective than any one alone. It would seem that the streptomycin had therapeutic value, because clinically the patient began to improve and the spinal fluid cell count began to drop after the streptomycin was started. The continuous ventricular drainage was started at about the same time. It is difficult to evaluate the efficacy of this procedure as far as the infection, per se, is concerned. It did relieve the intracranial pressure. The papilledema subsided rapidly after the ventricular drainage.

The relation of the mental illness to the infection must be considered. The mental symptoms began one and one-half years before, coincident with the appearance of the "lump" in her neck. Whether this represented a "metastasis" to the central nervous system is entirely speculative. A dormant abscess of the frontal lobe subsequently rupturing into the subarachnoid space might explain the relationship between the psychosis and the meningitis, but this too is conjectural. The patient's psychosis, however, completely cleared up as she recovered from the meningitis.

BACTERIOLOGIC REPORT

Since actinomycosis of the central nervous system is rarely diagnosed during life, it is appropriate that the complete bacteriological examination of this case be included. The following report signed by Dr. Richard K. C. Lee, Assistant Health Executive of the Board of Health, Territory of Hawaii, is given in its entirety.

The appearance of these spinal fluids was consistently the same, mainly cloudy with pieces of fibrous material resembling a pellicle. A wet preparation of a portion of the pellicle, examined under the microscope, revealed a few red blood cells and a large number of white blood cells, predominantly the polymorphonuclear type in each instance. Yeastlike forms were absent. Gram's and acid-fast stains of the centrifuged specimens failed to show any bacteria.

In all the specimens the same procedure of culture technic was followed. The sediment was planted on the following mediums: Petragnani's, chocolate agar incubated at 37 C. in approximately 10 per cent carbon dioxide atmosphere and sodium thioglycollate. The results obtained by culture media are as follows: 1. Blood agar plate (first and second specimens only: No growth was present after a period of one week. The plates were discarded. 2. Chocolate agar: Small chalky colonies appeared after seventy-two hours' incubation, appearing as dry looking and wrinkled with raised rough centers and crose-like edges. Stained slides of the growth showed coccic and diphtheroid-like forms which were gram positive and acid fast. Microscopic examination of a single colony by the wet preparation method showed spore-bearing myceliums seemingly radiating from a center. 3. Sodium thioglycollate: Tiny individual white colonies with pink centers suspended in the culture medium were observed microscopically after ninety-six hours. The gram-positive and acid-fast stains and wet preparation of the growth gave identical results as that on chocolate agar. Colonies were picked and subcultured to Sabouraud's medium. After forty-eight hours, small, rough, chalky dry colonies were observed which turned pink after a period of six days.

A culture of the fungus on Sabouraud's agar was sent to Dr. C. W. Emmons, Principal Mycologist, Division of Infectious Diseases, National Institute of Health, Bethesda, Md., for identification. The fungus was identified by Dr. C. W. Emmons as a typical culture of Nocardia asteroides, an acid-fast actinomycete.

SUMMARY AND CONCLUSION

This is the first report of a verified case of actinomycosis of the central nervous system, with recovery.

The advent of the sulfonamide drugs and penicillin have greatly modified the treatment of systemic actinomycosis. Recent literature has stressed the specific value of these drugs in actinomycotic infections.

This is the first case of actinomycosis of the central nervous system in which adequate chemotherapy has been given. It is our conclusion that intensive treatment with sulfadiazine, penicillin and streptomycin accounts for the good clinical results.

Streptomycin Treatment of Bubonic Plague.—Streptomycin treatment of three very severe cases of plague not responding to sulphonamides resulted in speedy recovery. A fourth severe case was not treated with streptomycin, and the patient died on the eighth day of his illness. Whereas the effect of streptomycin on the general condition of the patients was remarkably good, the buboes appeared to be uninfluenced if treated late. This was true also in respect of the sulphonamides, and in most cases incision and drainage were necessary to bring about resolution.—Haddad, C., M.D., and Valero, A., M.B., *British Medical Journal*, May 29, 1948.

ORAL "MYANESIN" IN TREATMENT OF SPASTIC AND HYPERKINETIC DISORDERS

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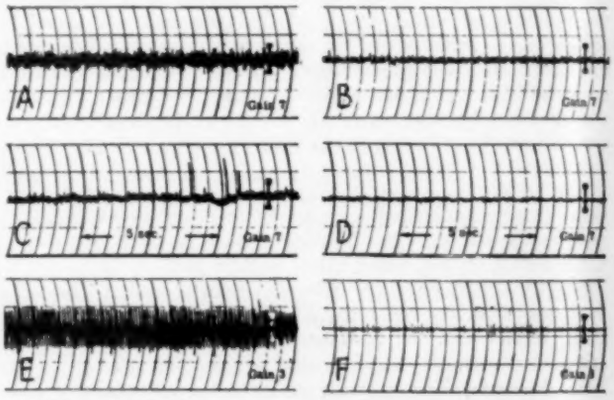
The interesting pharmacologic properties of "myanesin" (3-ortho-toloxy-1,2-propanediol), such as its power to relax spasticity and rigidity, its action to restore deranged reciprocal innervation and its inhibiting effect on certain release symptoms, suggested that this drug may be useful in the production of muscular relaxation during anesthesia and for the treatment of certain spastic and hyperkinetic disorders.[1] "Myanesin" has since been widely used for muscle relaxation during anesthesia in Great Britain,[2] and it was recently reported that 10,000 patients received intravenous injections of this agent.[3]

The value of "myanesin" in the treatment of spastic and hyperkinetic disorders has not been examined as extensively. Stephen and Chandy[4] obtained short-lived beneficial effects on certain diseases of the extrapyramidal nervous system on intravenous administration of a 10 per cent solution of the drug. They also observed localized thrombophlebitis and transient hemoglobinuria following administration. These side effects were due to the solvents used in the preparation of concentrated solutions of myanesin. Schlesinger and associates[5] observed that the use of 2 per cent solutions of "myanesin" caused neither phlebitis nor hemoglobinuria on intravenous administration; it ameliorated involuntary movements, rigidity, spasticity and tremor. The drug was, however, of limited clinical value because of its evanescent action and the alleged ineffectiveness after oral administration.[6] The purpose of this report is to draw attention to the fact that "myanesin" is well absorbed after oral administration,[1a,c] and to outline briefly the satisfying results obtainable in previously intractable conditions.

The drug was administered as 3.3 per cent (weight in volume) solution in 20 per cent (volume in volume) aqueous propylene glycol, with syrup of cherry 20 per cent (volume in volume to improve the taste of the mixture. The usual single dose was 30 cc. of the mixture equal to 1 Gm. of "myanesin." Children received proportionally smaller doses. To obtain objective and permanent evidence of the effect of the drug electromyographic records[7] were taken prior to administration of the drug. "Myanesin" was then administered without disturbing the leads and muscular activity recorded thirty to sixty minutes after administration of the drug. The disappearance or diminution of the abnormal muscular discharges in the electromyograms could be observed as soon as five to twenty minutes after administration of the drug (the figure). These changes were as a rule accompanied by other signs and symptoms, such as decrease of spasticity, increase of range of motion, amelioration of involuntary movements and relief of pain.



Electromyographic recordings before and after administration of "myanesin." I = 4,000 microvolts. *A,B,C,* and *D,* I = 140 microvolts; residual paralysis of apoplexy. *A* and *B,* leads from biceps brachii and rectus femoris respectively before administration of drug. *C* and *D,* same muscles fifteen minutes after oral administration of 1 Gm. "myanesin." *E* and *F,* parkinsonism. *F,* I = 1,499 microvolts; twenty minutes after administration of 1 Gm. "myanesin" orally.

The rapid absorption of "myanesin" from the stomach could be demonstrated by the presence of metabolic products of "myanesin" in the urine as soon as fifteen minutes after oral administration of the drug. The metabolic product gave a cherry red color on treatment of the urine with Ehrlich's diazo reagent. "Myanesin" itself did not give this reaction. Those workers who found the drug ineffective on oral administration presumably administered it in tablet form. The advantages of the oral administration of "myanesin" in the form of capsules or tablets are clearly evident. Initial experience suggests that tablets and capsules may be effective in certain cases.

Hemiplegic patients whose paralysis has been stationary for four to seven years showed a striking recovery of some of the voluntary movements of the paralyzed limbs ten to twenty minutes after administration of the drug. The maximum benefit was usually obtained after two.

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Aided by a grant from the National Foundation for Infantile Paralysis. "Myanesin" was supplied by E.R. Squibb and Sons.

1. (a) Berger, F. M., and Bradley, W.: Brit. J. Pharmacol. 1: 255 (Dec.) 1946. (b) Berger, F. M.: Lancet 1: 97 (Jan. 18) 1947; (c) Brit. J. Pharmacol. 2: 241 (Dec.) 1947.

2. Mallinson, F. B.: Lancet 1: 98 (Jan. 18) 1947. Turnbull, T. A.: J. Roy. Nav. M. Serv. 33: 41 (Jan.) 1947. Lyall, A.: Glasgow M. J. 29: 313, 1947, Wilson, H. B., and Gordon, H. E.: Lancet 1: 357 (March 6) 1948. Davidson, W.H.A.: Brit. M. J. 1: 544 (March 20) 1948.

3. For and Against Myanesin, Lancet 1: 487 (March 27) 1948.

4. Stephen, C.R., and Chandy, J.: Canad. M. A. J. 57: 463 (Nov.) 1947.

5. Schlesinger, E.B.; Drew, A.L., and Wood, B.: Am. J. Med. 4: 365 (March) 1948.

6. Schlesinger, Drew and Wood.[5] Hunter, A.R., and Waterfall, J.M.: Lancet 1: 366 (March 6) 1948.

7. Schwartz, R.P.; Heath, A.L., and Hudson, F.W.: J. Bone & Joint Surg., to be published.

to three days of medication and could be maintained by giving 1 Gm. doses in the mixture three to five times daily. These observations show that loss of function in spastic paralysis is not necessarily or exclusively due to the destruction of motor pathways. It is possible that loss of movement in residual paralysis of apoplexy and spastic paralysis in general may be primarily due to the splinting action of spasticity. Spasticity is caused by an exaggeration of the stretch reflexes. The power of "myanesin" to bring about a return of function in spastic paralysis is due to its property of reducing exaggerated reflexes to normal without affecting the normal reflexes.[1c] In this way spasticity may be reduced without abolition of voluntary power.

Remarkable results were also obtained in certain cases of cerebral diplegia. The drug appeared effective in spastic, athetoid and choreiform types of the disease. In spastic diplegia the drug, in the doses given, caused but little diminution of spasticity as judged by the increased tendon jerks and clonus. Manipulation of the spastic limbs was, however, easier, and the physical performance of the patients improved. They were able to walk more quickly and for longer periods of time than before administration of the drug. The choreiform jerking movements were ameliorated to a somewhat greater extent than the slower athetoid movements. Some of these patients had lesions which were particularly sensitive to the drug. The athetoid movement and incoordination of a woman, 21 years of age, were almost completely controlled by a single 0.5 Gm. dose, but other patients derived less benefit from larger doses repeated several times daily. One patient (a woman of 22 years) while receiving "myanesin" (1 Gm. thrice daily) showed signs of decerebrate rigidity, which subsided again after discontinuance of the drug. The administration of smaller doses (1 Gm. once daily) ameliorated athetosis and did not cause side effects. The favorable effect of "myanesin" in diplegia is due to the depressant action of the drug on the nuclei of the brain stem and to its power to reestablish disturbed reciprocal innervation,[1c] which also plays an important part in the clinical picture of the disease. The amount of benefit derived will also depend on the exact localization of the cerebral lesion.

In Parkinson's syndrome the oral administration of "myanesin" reduced tremor and rigidity. The effect of the drug on oral administration was not as spectacular as that observed after parenteral administration, but it was of longer duration and did not cause side effects. The best results were obtained if "myanesin" was given in addition to the usual drugs of the atropine class. Certain patients derived only little benefit from the medication. This may have been due to too low a dosage, incomplete absorption or insensitivity of the pathologic mechanism to the drug.

The oral administration of "myanesin" also proved effective in various conditions causing muscular spasm, such as arthritis of the cervical part of the spine (fifth and sixth cervical vertebrae), subacromial bursitis, pain low in the back, osteoarthritis of the hip joint and similar conditions. "Myanesin" frequently relieved both spasm and pain due to spasm. Sometimes the action was transient and of short duration, and sometimes it was prolonged indefinitely. In the latter case this effect was thought to be due to an interruption of a pain-spasm vicious circle. "Myanesin" did not have any central analgesic action of the type possessed by morphine or meperidine hydrochloride, but had antipyretic properties of a similar or greater order than the salicylates. The effect of the drug in acute rheumatic fever would be of interest. "Myanesin" was ineffective in contracture due to ischemia, multiple sclerosis and thromboangiitis obliterans.

The oral administration of "myanesin" rarely caused side effects. Blood pressure, heart rate and respiration were not affected. Nystagmus, diplopia, mild muscular incoordination and other symptoms sometimes appearing after intravenous injection were not observed after oral administration. Only 1 out of the 59 patients treated thus far complained of anorexia. Nausea or vomiting were not complained of. Several patients experienced a transient feeling of lassitude for ten to twenty minutes after administration. This lassitude was not, however, great enough to prevent them from carrying out their usual duties. Samples of blood were frequently examined for hemoglobinemia with negative results. The results of the van den Bergh test were always within normal limits. The urine remained free from protein and blood in all cases, but always showed a positive reaction to the Ehrlich diazo test. The intensity of the color obtained with the urine was proportional to the amount of "myanesin" taken. Certain patients have now been on continuous medication for five weeks without showing side effects. Patients receiving the drug should, however, be watched closely, as the chronic effects of the drug on human beings are still unknown.

The benefit obtainable with oral administration of "myanesin" in spastic and hyperkinetic disorders is much greater than that obtained with curare, erythroidine, neostigmine or any other known remedy. But, there is a need for other drugs possessing a still stronger spasticity-releasing action. This preliminary communication is presented in the hope that it will make the life of those who cannot move as they wish more tolerable and stimulate interest in research designed to increase the understanding and essential resources for control of abnormal functions of the central nervous system.

CONCLUSIONS

The ortho tolyl ether of glycerol called "myanesin" has a relaxant effect on muscle

spasm, spasticity and rigidity and an ameliorating effect on tremor and involuntary movement of extrapyramidal origin. These effects are caused by a selectively depressant effect of the drug on the central nervous system. Up to the present the drug has been administered intravenously and was thought to have little practical interest because of the evanescent action and side effects introduced with this route of administration. The present report shows that "myanesin" on oral administration produces most of the beneficial effects observed after intravenous administration without causing side effects. The drug was well tolerated over a period of many weeks and favorably influenced several previously intractable conditions.

PROBLEM OF THE CONGENITALLY DEAF CHILD

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Unfortunately, there are and will be children born deaf, and there will be children who become severely deaf between birth and the age of 2. Both of these groups will not be able to learn language and will have difficulty learning speech. There are at present between seventeen thousand and twenty thousand children in our schools for the deaf, these being admitted at the age of 6, when the nursery problem has passed.

But the difficulty at present is that there is no provision for handling the little deaf child between the ages of 2 and 6. Here is a period when much valuable time is lost, when behavior faults and psychologic variations establish themselves and when, if usable remnants of hearing lie unused, attention deafness fixes itself on the child.

One might say something about the possibility of prevention in these cases; yet little can be said. Unbelievably, heredity gives but a 25 per cent incidence, and injuries at birth undoubtedly play an infinitesimal part. Recent investigations show that rubella in the pregnant mother is a frequent cause, even though the attack may be mild. Quinine medication at parturition is also recognized as a definite cause of deafness at birth. After birth, the childhood fevers may play a part, not so much in some degree of catarrhal deafness, but in nerve and cochlear damage. Measles, again, is the commonest offender, while meningitis and encephalitis, although producing profound deafness, are occasional. In some cases purulent otitis media may destroy the infant's hearing, and it will be encountered as a complication of common colds as well as of the exanthems. One can then judge what little control the physician has over the appearance of this great handicap.

Around the age of 2, the child is first brought by the parents to the family physician, to the otologist or to the psychologist. Strangely enough, it is usually the child's failure to develop speech rather than the deafness which is first recognized. The physician cannot dismiss the case by saying either that nothing can be done or that the child must ultimately be sent to a school for the deaf. There is a four year wait for the latter, and the parents insist that something must be done. The psychologist must be guarded in his diagnosis and advice on the case, for many of these children are variants of such a degree as would make them appear to be mentally deficient. Too often they have been so labeled and have been abandoned to a school for the feeble-minded.

Definitely, something can be done for these patients, and the sooner the start is made, the better. Most of the deaf children have some remnant of reachable, usable hearing, and means of arousing and awakening auditory attention by amplified sound are now available.

When one sees the deaf child on his first office visit, the impression is had of an extremely fretful, restless and ill-tempered being. No attention is paid to sound; words mean nothing; wilfulness and self determination are supreme. The child balks at all discipline and readily goes into fits of temper and sulkiness. This is really the ipitial problem in the case, and must be surmounted before progress in reaching and testing hearing is achieved. Certainly, until the child is taught to listen and is brought to a state of wanting to listen, no progress in teaching language can be made. For language in the normal child develops from two years of listening and of building up word images and word meanings. Only when these develop will a child attempt to imitate what he hears in speech.

Starting with the presumption that this child probably has some usable residual hearing, the first objective is to find the amount. The technic of bringing the child to the point of testing fits in well with the problem of straightening out behavior and of fixing auditory attention. A program of training in a conditioned response is begun. Attention to sound is now, and is all through future training, the primary object. The simplest conditioned response is that of raising the hand when the loud sound is presented at the ear. This can be done by the use of an electric buzzer operating a telephone receiver, but an essential is that the receiver vibrates so loudly that it may be felt as well as heard. The parents are given such equipment and told to train the child to hold up the hand after the buzz is turned on and to drop the hand after it is turned off. At times the parents will return with the story that they are getting no response, that the child does not hear and thus does not respond properly. But this is an evidence of failure of proper training technic or of lack of persistence. The child surely can be trained to raise the hand at least to the tactile stimulus, which is known to be unimpaired.

While the training period is on, the child's behavior and attention remarkably improve. No longer is he fitful and cranky, he becomes gentle and altogether less troublesome. When the child's reactions to the training device are accurate, he can then be tested with an audiometer, and an exact record of the amount of residual hearing is obtained. It is surprising to find that many of these children have as much as 50 to 60 per cent hearing in the speech-hearing zone. Such information leads one to believe that a 40 to 50 per cent loss can cause the child to become attention deaf. It is common knowledge that many adults with this amount of loss get along well with a hearing aid. The difference in the situation is that the adult with acquired deafness has already learned language and speech. The deaf child never heard well enough to make it worth while for him to listen. Thus, no word images and no word memories were built up.

From this point the problem would seem entirely pedagogic; yet the physician must often supervise and watch over the progress of the case. A hearing aid is put on even the youngest child, and he is "bathed" in speech. Simple, common words are selected and a definite training program of word, phrase and sentence teaching is started. Lip reading by the child is forcibly

submerged at first by the teacher who covers her lips, for these children are often natural lip readers. If lip reading becomes efficient, then forcing audition will be difficult because sound will act as an interruption to lip-reading attention. Later, lip reading is permitted and encouraged to supplement hearing, but the child must be trained to use the two senses simultaneously.

In a series of over 50 patients in the last two years, I have found approximately 90 per cent with usable hearing. Hearing aids were put on all these young children, in the hope of finding some hearing. The point is that one cannot at once tell how much hearing there is. One tries and usually is pleasantly surprised that a child called deaf is learning words and is ultimately learning speech. This even suggests the abandoning of the dictum that meningitic deafness means total deafness. Although my failures in this program of training have been in cases of meningitis and encephalitis, an occasional patient may be found with usable residual hearing.

It is important that the physician see that tubal catarrh, adenoid hyperplasia and common head colds do not add to the deafness already present. In the initial care of the case it is well to admit the child to the hospital to test for tubal patency, test for caloric vestibular response and clean out the nasopharynx of adenoid hyperplasia if found. Roentgen rays or radium may be used to control adenoid reaction; yet I have found that general hygiene and attention to nasal catarrh keep the adenoids from recurring. Tubal impatency can account for 20 to 40 per cent increment of deafness in these cases. One of the first signs may be that the child no longer wants to use the hearing aid and obviously is not hearing well enough to make it worth while for him to listen.

It is well to do the vestibular test at the time of hospitalization, while the child is under light anesthesia, for it is impossible as an office procedure. The information obtained may be suggestive; the labyrinths are often found to be dead or with decidedly reduced response. Ear molds should be made before the child has recovered consciousness; they will be needed for the hearing aid.

The objective in the training program is to teach language and to develop speech by the normal hearing method. Only with the hearing of speech is proper imitation of speech possible. The deaf child with a hearing aid that reaches his audition can hear his own voice and can avoid the flat, unintelligible speech of the deaf.

The plans are to keep this child in the realm of home normalcy, to the avoidance of institutionalizing if possible. The children in this group, handled in such a fashion, are for the most part getting language rapidly and many are ready to enter the first grade of school with children of normal hearing.

Parent training in teaching technic is an important item in the program, as are periodic reportings and tests of hearing. Most parents have the interest and the urge to avoid having a child grow up with the full disability of deafness. Most parents can and will carry on the work with success. The correspondence course of the Tracy Clinic and the literature and cooperation of the Volta Bureau are of great help.

SUMMARY

The little child deaf at birth or deaf before the age of 2 does not learn language and speech. Most of these children have usable hearing that can be reached by amplified sound. Most of them can be taught to understand the spoken word by hearing and can be taught to speak intelligibly. A hearing aid should be tried even on the apparently hopelessly deaf child. Training in a conditioned response will not only improve the behavior and attention but will permit of a quantitative hearing test.

It is highly advisable to prepare these children to enter the schools for children with normal hearing, avoiding institutionalizing if results warrant it. Normalcy in growing up is most needed in any handicapped child.

The case should be carefully followed by the physician, who safeguards the hearing that remains and who sees that the language and speech training program is conscientiously carried out.

THE POSTERIORLY LOCATED RENAL PELVIS ASSOCIATED WITH PTOSIS

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The experience of having unsatisfactory results in 2 patients on whom I performed nephropexy six years ago stimulated my interest in the posteriorly located renal pelvis. In the first case, the pain of the patient was not satisfactorily relieved and, in the second case, the kidney had to be removed before the patient had a chance to leave the hospital because of uncontrollable renal pain. In both instances the renal pelvis was observed to be coming from a scooped-out-like depression on the posterior aspect of the kidney. Since this experience, it has been impressive to observe that every patient who has had enough difficulty with ptosis to demand surgical treatment has had this type of kidney.

Twenty-five patients between the ages of 17 to 68 in whom the diagnosis of posteriorly located pelvis has been made have been seen. Of these, 2 were males and 23 were females. Two had the abnormality on the left side and 3 on both sides, 11 had infection, 19 had varying degrees of dilatation and impaired emptying, and 4 had anomalous vessels associated with dilatation.

Of the 19 patients operated on, 4 were subjected to nephropexy, and 1 of these had a nephrectomy; 13 had primary nephrectomy; 2 had resection of the lower pole; 2 had hypertension, and 2 had ureters of extremely small caliber. Five patients were not subjected to surgical procedures for the following reasons: Patient 1 was a poor surgical risk who satisfactorily controlled recurrent infections by the administration of urinary antiseptic. Patient 2 did not have dilatation or infection. The only symptom was backache toward the latter part of the day. The patient was referred back to the referring physician to try an abdominal support. Patient 3 had only one attack of acute pyelonephritis and only

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slight delayed emptying. Patient 4 had a four year history of recurring, left-sided, renal pain. There was no infection. An oblique roentgenogram demonstrated a ureter coming off posteriorly. The patient did not have enough discomfort to desire surgical treatment. Patient 5 had bilateral infection, but drained well. The only symptom had been cystitis. Surgical treatment was not advised.

Of the nephropexies, I had one satisfactory result, and that was in a man who had bilateral ptosis and dilatation. An exploratory operation had been done for supposed intestinal obstruction, and the patient was found to have a large dilatation of the right renal pelvis, which was drained; drainage persisted as from a urinary fistula. On exploration an anomalous vessel was removed before nephropexy, which has resulted in a satisfactory course over a period of two years.

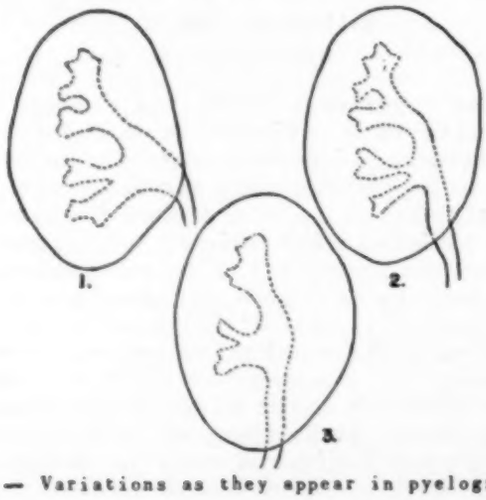

Fig. 1.— Variations as they appear in pyelograms.

The other patients with nephropexy have been worrying along with periodic spells of discomfort not disturbing enough to cause them to wish further surgical procedures. All of the patients with nephrectomy have done well except one who was diabetic. She had nephrectomy for recurring renal infection with dilatation on the right. It was felt that the removal of the infected kidney would prove helpful in her diabetic course. This has not proved to be true, and she not only had severe diabetes, but hypertension with varying periods of renal insufficiency, and incompletely emptying neurogenic bladder and infection of the remaining kidney.

The 2 patients whose lower pole was removed have done well.

COMMENT

Pathogenesis — Of this type of mechanism of development of renal pelvis is not too clear. Without going into too much detail and discussion, it is my impression that the location of the pelvis in the posterior aspect of the kidney is a result of the location of the initial fusion between the ureteral bud and the metanephros rather than rotation anomalies. My reason for feeling rather strongly that this is so is the fact that the kidney itself is usually flat and in the prone position and lies on the posterior abdominal wall like any normal kidney. Unless a lateral or oblique roentgeongram is taken, it may be impossible to determine whether the pelvis is anterior or posterior.

I have asked Charles G. Stockard, assistant pathologist at Doctors Hospital, to look for this type of kidney at the autopsy table. He has informed me that he has examined approximately 100 kidneys at autopsy and so far has failed to find this type of pelvis.

Fig. 2.— Posterior view of kidney.

Figure 1 is a conglomerate drawing of the variations in the pyelograms as they appear on the films. It is impressive to me that they do not appear more abnormal. Number 3, in this figure, is the most suggestive with respect to contour of the pyelograms and the relation of the ureter to the soft tissue outline of the kidney.

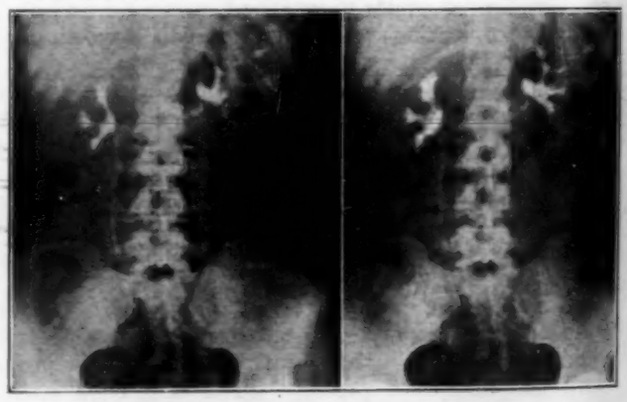

Fig. 3.— Showing gun barrel effect.

Figure 2 is a drawing of the pelvis of the posterior aspect of the kidney in a case in which the condition is pronounced.

The diagnosis of the posteriorly placed renal pelvis is suggested urographically by the gun barrel effect as shown in figure 3, and by the location of the ureter lateral to the medial pelvic border as suggested in figure 4.

Oblique rays may be of considerable value, as demonstrated in figure 5.

In only a few cases did roentgenograms suggest the presence of the posteriorly placed pelvis.

As one sees more of these cases, it is possible to suspect the presence of posteriorly located pelvis just by the appearance of the

urogram rather than by any description that one may give of it. The removal of the lower pole or the removal of an anomalous vessel

Fig. 4.— The ureter seems to be lateral to the medial pelvic border.

should be the procedure employed when it seems likely that such procedure has a reasonable chance to have a satisfactory result. Figures 6 and 7 illustrate resection of the lower pole.

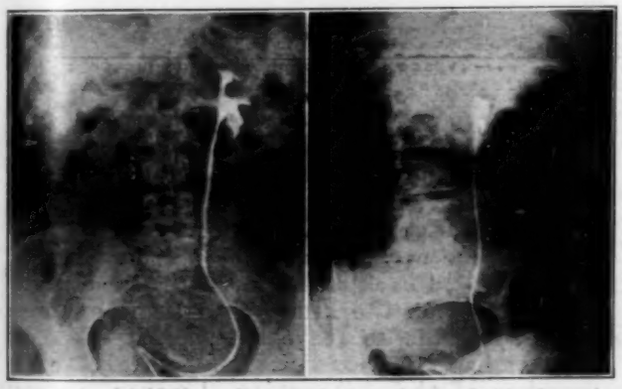

Fig. 5.— Pyelogram on the left is anteroposterior. The pyelogram on the right is an oblique view and demonstrates the posterior location of the ureter.

Whenever the arrangement of the vascular pedicle is such that resection cannot be carried out, or an anomalous vessel removed to relieve obstruction satisfactorily, nephrectomy is the best procedure. Small caliber of

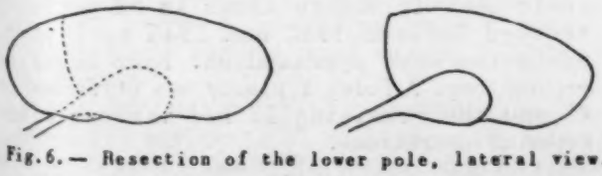

Fig. 6.— Resection of the lower pole, lateral view.

the ureter is an indication for nephrectomy, for there is no procedure that I know of that can alter the caliber of the ureter in its entirety. This experience with these cases has been most interesting, and the most striking aspect of it is that in every instance when ptosis of the kidney was accompanied by symptoms that were sufficiently severe to demand surgical intervention, a posteriorly placed renal pelvis was always found to be present. As time goes on it may be possible in a larger

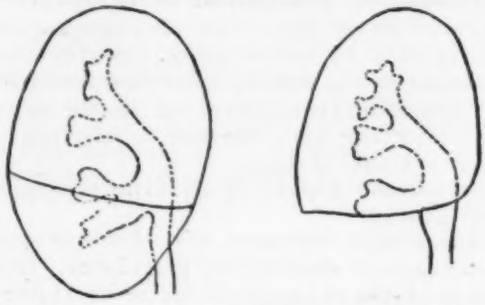

Fig. 7.— Resection of the lower pole, front view.

proportion of cases to fashion the lower pole of the kidney in such a way that the ureter cannot be interfered with by an overhanging mass of renal tissue.

CONCLUSION

The presence of a posteriorly located renal pelvis is an important factor in producing symptoms that are severe enough to indicate surgical procedures in many patients who have ptosis of the kidney.

URETEROPELVIC OBSTRUCTIONS: SYMPTOMS AND TREATMENT

Report of Seventy Cases, Sixty-Two Operations

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Often the sole manifestation of an obstructive renal syndrome may be a digestive upset with no urinary symptoms. The common nerve supply of the kidneys and the intestinal tract is well understood, and any renal irritation frequently results in indigestion, flatulence and nausea, yet this fact is often overlooked, particularly in the absence of symptoms attracting attention to the kidney. Also, it is too frequently stated that, since the urine is normal, the kidneys cannot be considered as the possible cause of gastrointestinal symptoms. Many serious urologic lesions may exist even when the urine is normal.

The principles of the treatment for partial obstruction at the ureteropelvic junction are being more universally recognized by urologists. Successful repair of this deformity, with resultant conservation of renal tissue, is often accomplished, and yet the general medical profession is not wholly aware of these improvements. Formerly, kidneys with

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ureteropelvic obstruction and varying degrees of hydronephrosis were removed, mainly because the results from plastic surgery were so frequently unsuccessful that, subsequently, the kidney had to be sacrificed. Although each patient must be considered individually, our aim should be to preserve functioning renal tissue in most of these cases. Greater success has been accomplished by a better understanding of the principles involved in the surgical repair, together with the use of the new antiseptics and antibiotics.

A preliminary report by Henline and Menning[1] in 1943 stated:

> The successful treatment of hydronephrosis due to ureteropelvic obstruction postulates, first, a knowledge of the etiological factor or factors involved and their proper recognition and evaluation at operation. It is all too familiar that merely severing aberrant vessels in certain cases results in temporary or no improvement. Second, a surgical procedure must be applied which is best adapted to the correction of a given deformity. The technique should restore a well-draining pelvi-ureteral outlet. Third, complete plastic repair requires prolonged nephrostomy drainage and splinting of the area of repair. Where this is neglected, secondary contracture and distortion at the site of the repair will vitiate the initial surgical correction, no matter how meticulous the technique.

Our success in these earlier cases indicates that satisfactory results in our hands depends, to a large extent, on the fulfilment of certain fundamental principles. First, the diagnosis should be made by a ten minute delayed roentgenogram following retrograde pyelography. The site of the obstruction at the ureteropelvic junction is seen, and the delay in the emptying of the kidney pelvis is apparent (fig. 1). Second, the exact cause of such obstruction must be sought and corrected at the time of operation. Intrinsic stenosis at the ureteropelvic junction is the most common cause. Even if aberrant vessels and bands are also present, their separation may relieve only part of the cause of the obstruction. In this case, the intrinsic stenosis must also be remedied. Third, the deformity must be adequately corrected and, as a rule, the narrow ureteropelvic junction must be incised longitudinally. We have preferred the Foley Y plasty in most instances. Fourth, the third principle is likely to fail unless nephrostomy drainage to divert the urine is established and a soft rubber catheter is inserted as a splint down the ureter. We have permitted both the nephrostomy tube and the splinting catheter to remain in place for six weeks to allow for complete healing of the repaired ureteropelvic junction. Fifth, resection of a portion of the enlarged pelvis and careful suture of the areas to be approximated are desirable. Careful suturing may be less important than the other principles in the repair of this deformity.

1. Henline, R. B., and Menning, J. H.: The Management of Hydronephrosis Due to Ureteropelvic Obstruction: Preliminary Report, J. Urol. 50: 1943.

Once the diagnosis of ureteropelvic obstruction has been made, the choice of treatment must be considered. Local treatment, such as dilating the narrowed area with catheters, bougies or bulbs, is notoriously unsuccessful. While it is true that symptoms may be relieved for varying periods by passing a catheter through the constricted area, the permanent

Fig. 1.—Typical ureteropelvic obstruction. Note empty ureter and retained contrast medium in renal pelvis.

benefits have not been encouraging in our hands. The temporary establishment of drainage by a catheter will usually relieve the renal colic, but symptoms will recur in most instances. The narrowing of the ureter persists, and continued back pressure in the pelvis will further damage the kidney. In some instances it is advisable to leave the patient alone and subject him to reexamination to evaluate the progress of the obstruction. However, in most instances, surgical intervention is necessary to relieve the obstruction and prevent continued renal damage.

In the aforementioned preliminary report the early results of 11 Foley Y plastic[2] operations, following the foregoing principles, were reported. The present report includes these cases and summarizes the findings of 70 ureteropelvic obstructions in 52 patients treated between 1942 and 1946 inclusive. Sixty-two were operated on. Four required nephrectomy. A Foley Y plasty was performed on 45 and the remaining 13 had various other types of operations.

AGE

The ages of these 52 patients ranged from 4 to 63 years. The largest percentage were be-

2. Foley, F. E. B.: A new Plastic Operation for Stricture at the Ureteropelvic Junction: Report of Twenty-One Cases, J. Urol. 38: 643-672, 1937.

tween 20 and 40 years (61.6 per cent). Although many of these obstructions are congenital, they often go unrecognized for many years. Supervening infection may first attract one's attention to the urinary tract.

SYMPTOMS

The frequency of gastrointestinal symptoms in renal disease is attested by the fact that 20 of 52 patients complained primarily of indigestion, flatulence or nausea. In 19 patients, voided urine was normal. This serves to call attention to the fact that one must not eliminate renal disease in the presence of normal voided urine. Urinary symptoms were present in 22, and some renal pain, varying from backache to renal colic, in 46 (table 1).

TABLE 1.—*Symptoms, 52 Patients*

Gastrointestinal (indigestion, flatulence, nausea, etc.)	20
Urinary Symptoms (hematuria, frequency, nocturia, dysuria, etc.)	22
Backache to renal colic (2 days to 14 years)	46
Voided urine normal (remainder, some RBC and WBC)	19
Voided urine after operation normal	25

After operation, the voided urine was normal in 25 patients.

DILATATION OF RENAL PELVIS

The size of the hydronephrosis (grading from 1 to 4) showed that none of the 70 pelves was normal; the larger number (33) were grade 2 before operation. After operation, 11 were shown to be normal and 27 had grade 1 dilatation. Some improvement was noted in practically all cases. There were 18 patients with bilateral ureteropelvic obstruction, but only 9 were subjected to bilateral plastic operations. Renal calculi were present in 12 kidneys.

RENAL FUNCTION

Preoperatively, 13 of 25 patients with ureteropelvic obstructions had diminished function on the affected side, while 12 of 25 had equal function of both kidneys. After operation, 10 of the 13 patients with diminished function were improved according to our functional tests. All patients were subjected to retrograde pyelography and a ten minute delayed roentgenogram taken after the pyelogram. All except 4 showed evidence of delay in eliminating the contrast medium from the renal pelvis.

CAUSES OF URETEROPELVIC OBSTRUCTION

In 44 (71 per cent) of 62 kidneys operated on, the cause of the ureteropelvic obstruction was found to be within the ureter (table 2).

The causative factors included stricture and hypertrophy of the ring (circular) muscle and valves which cause the lumen of the ureter to be diminished in size. In 2 (3.2 per cent), aberrant vessels, bands or adhesions were found to be the sole cause of obstruction. In the remaining 16 (25.8 per cent), both extrinsic causes (aberrant vessels, bands, etc.) and intrinsic causes (stricture, hypertrophy of the muscle or fibrous tissue) were present. It is this last group, in which a combination of

TABLE 2.—*Causes of Ureteropelvic Obstruction, 62 Cases*

	Number	Percentage
Extrinsic alone (aberrant vessels, bands or adhesions)	2	3.2
Intrinsic alone (stricture, hyperplasia of circular muscle, etc.)	44	71.0
Both extrinsic and intrinsic	16	25.8

factors produced the obstruction, that requires particular diligence in order to make certain that all the obstructive factors are corrected. One must not be misled by the finding of an aberrant vessel or band and fail to search for still another obstructive element within the ureter. To overlook an intrinsic obstruction may lead to progressive damage of the kidney until it is destroyed beyond repair. In our cases, the infrequent finding of aberrant vessels (3.2 per cent) as the only cause of ureteropelvic obstruction suggests the necessity of carefully searching for other causes. Unfortunately, the literature is filled with evidence that aberrant vessels and bands are the most common cause of these obstructions. Our findings coincide with those of Geraghty and Frontz,[3] who, in 1918, found inflammatory contracture and strictures as the almost universal cause of ureteropelvic obstructions. Although Eisendrath and Strauss,[4] in 1921, found accessory vessels in 21 per cent of kidneys at autopsy, their role in producing ureteropelvic obstruction in most cases is questionable.

OPERATIONS

There were 62 operations performed on 52 patients, 10 having both kidneys operated on. Of these, 39 had 45 Foley Y plastic operations, and of these 9 had resection of the redundant pelvis. The remainder had various types of procedures, as shown in table 3.

In all of the Foley Y plastic operations a nephrostomy tube (Malecot catheter) was used for drainage and a soft rubber splinting catheter was inserted with the nephrostomy tube and passed at least halfway down the ureter. In 29 of these, both tubes were left in place for six weeks or more. Pyelograms at varying intervals, with the contrast medium injected through the nephrostomy tube, gave information about the healing at the ureteropelvic junction. The final results in these 29

3. Geraghty, J. T., and Frontz, W. T.: A Study of Primary Hydronephrosis, J. Urol. 2: 161-210, 1918.
4. Eisendrath, D. N.: Hydronephrosis Due to Obstruction of the Renal Pelvis by One or Two Main Renal Arteries, 24: 173-185, 1930.

cases were: good, 20; fair, 4; and poor, 3. There was no follow-up in 2. When the nephrostomy tube and splinting catheter were removed earlier (or pulled out), the results were somewhat less satisfactory. This indicates that prolonged drainage and splinting are likely to give better results in these plastic procedures.

The larger group of patients (27 out of 45) drained no urine from the nephrostomy wound after forty-eight hours, indicating that adequate drainage down the ureter to the bladder had been reestablished. One urinary fistula developed, in the case in which both the nephrostomy tube and the splinting catheter were inadvertently pulled out on the nineteenth postoperative day. Subsequently nephrectomy was required.

TABLE 3.—*62 Operations*

Foley Y plastic (9 with resection of redundant pelvis)	45
Rammstedt plastic operations	5
Reimplantation of ureter	4
Nephrectomy	4
Intubation	1
Ligation of aberrant vessels only	1
Ligation of aberrant vessels with nephrostomy and splinting catheter	1
Nephrolithotomy with nephrostomy and splinting catheter	1

INFECTION

In the group of 45 Foley Y plastic operations, 39 renal cultures were taken, 23 of which were sterile before operation. After operation, 38 renal cultures were taken, 25 of which were sterile. Hinman[5] stated that plastic operations should not be undertaken in infected kidneys. While attempts should be made to eliminate infection when present, our experience suggests that plastic operations can be successfully performed in the presence of renal infection. In some instances it is impossible to eliminate infection in the presence of ureteropelvic obstruction. Furthermore, the newer antiseptics and antibiotics have undoubtedly made these operations safer even in the presence of infection.

POSTOPERATIVE RESULTS

The evaluation of postoperative results is difficult. One is not justified in stating that relief of pain constitutes a successful operation. While relief of pain may be satisfactory to the patient, the surgeon should convince himself that he has improved the drainage from the kidney and has adequately removed the obstruction which was causing gradual damage to the kidney. Relief of pain may occur following complete denervation of the kidney, especially around the ureteropelvic junction. The removal of these nerves may relieve the renal pain, at least temporarily, and satisfy both the patient and the surgeon that no further damage is occurring to that kidney. Other evidence regarding the results should be sought.

Of 39 patients with 45 Foley Y plastic operations, recently questioned, 34 (87.2 per cent) were completely free of symptoms (table 4). Three (7.7 per cent) were not relieved, and 2 (5.1 per cent) were doubtful. Of the patients who had other operative procedures, about half were symptom free and half were unimproved.

TABLE 4.—*Relief of Symptoms After Operation*

	Foley Y Plastic		Others	
	No.	%	No.	%
Yes	34	87.2	6	46.2
No	3	7.7	6	46.2
Doubtful	2	5.1	1	7.6

The postoperative pyelogram was considered by us to be satisfactory in 26 cases (65 per cent) and fair in 10 others (25 per cent), while 4 (10 per cent) showed poor results. In 5 no follow-up was possible.

Thirty-four of these 39 patients were subjected to retrograde pyelograms and a ten minute delayed roentgenogram. In 20 the contrast medium was completely expelled from the renal pelvis, all of whom had shown retention before operation. The remainder still showed some delay in expelling the contrast medium from the pelvis to the bladder.

To evaluate the results properly, one should not be misled by the relief of symptoms alone. Evidence of improved function (11 of 13 cases), and delayed retrograde pyelograms which show improved drainage from the renal pelvis give weight to the success of the operative procedure. Numerous patients have come under our observation after temporary relief of symptoms following severing of aberrant vessels or removal of fibrous bands. A thorough study of many of them revealed that the real obstruction at the ureteropelvic junction had not been relieved and renal damage had continued to progress. In many, the symptoms were temporarily relieved and both the surgeon and the patient considered the result to be satisfactory. In these cases, particularly, subsequent examinations should be continued for prolonged periods to evaluate the results.

One of our early patients had been subjected to surgical procedures on both kidneys three years before he came under our observation. Aberrant vessels had been severed at both ureteropelvic junctions together with the freeing of bands in this area. He was practically free from symptoms for almost three years, when he suddenly experienced left renal colic and anuria. Catheters would pass to neither

5. Hinman, F.: Treatment of Hydronephrosis, Southwestern Med. 26: 357-368, 1942.

kidney and an emergency left nephrostomy was performed. Subsequent investigation revealed grade 4 hydronephrosis in each kidney with bilateral intrinsic ureteropelvic obstruction

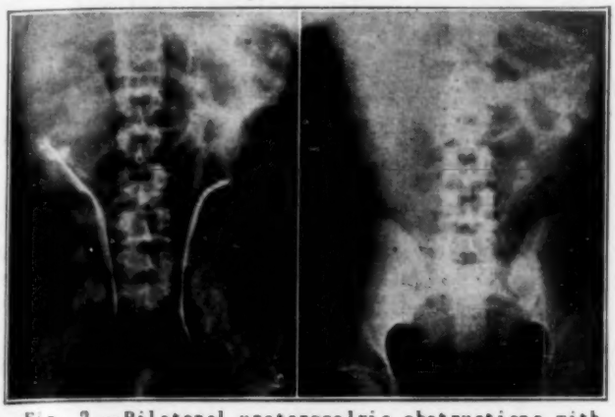

Fig. 2.—Bilateral ureteropelvic obstructions with huge hydronephrosis and complete anuria. Ureter on left was reimplanted in pelvis and Foley Y plastic operation was done on right.

(fig. 2). Plastic repair of both kidneys reestablished drainage, and he has remained well until the present (five and one-half years) (fig. 3).

MORTALITY

There were no operative deaths in this series. Two patients have subsequently died, 1 of uremia four years after operation and 1 of cardiac disease and uremia two and one half years after operation. Both of these patients had seriously damaged kidneys before operation and, although the operation may not have prolonged their lives, it is doubtful that it shortened the life of either one.

RENAL CALCULI

Stones were present in 12 of these kidneys before operation. Only 2 of the patients have reformed stones (table 5).

TABLE 5.—*Renal Calculi*

Before Operation	
Present in	12
Absent in	58
After Operation	
Reformed calculi	2
Stones developed after Foley Y plasty	5
	11.1% of 45 cases

However, 5 (11.1 per cent) of the 45 who had Foley Y plastic operation later had renal calculi. These may have formed from the prolonged nephrostomy drainage. This hazard should not be overlooked when prolonged drainage becomes necessary. A roentgenogram taken before the nephrostomy tube is removed may reveal the calculus, which sometimes may be dissolved by irrigation and this complication thereby prevented.

OTHER PLASTIC OPERATIONS

Other plastic operative procedures have not been very successful in our hands. Of 13 cases, the results were satisfactory in only 2. Prolonged drainage and ureteral splinting were not carried out in these cases.

NEPHRECTOMY AFTER PLASTIC OPERATION

In this series of cases, only 2 patients have thus far required subsequent nephrectomy. One patient required nephrectomy four months after an unsuccessful Rammstedt plastic operation. Failure in this case may be attributed partly to the fact that the nephrostomy tube and the splinting catheter were removed in twenty-one days. In the other case, nephrectomy was performed six months after a Foley Y plasty. The splinting catheter and nephrostomy tube were inadvertently pulled out on the nineteenth postoperative day and the repair was unsuccessful. A urinary fistula developed and nephrectomy was necessary.

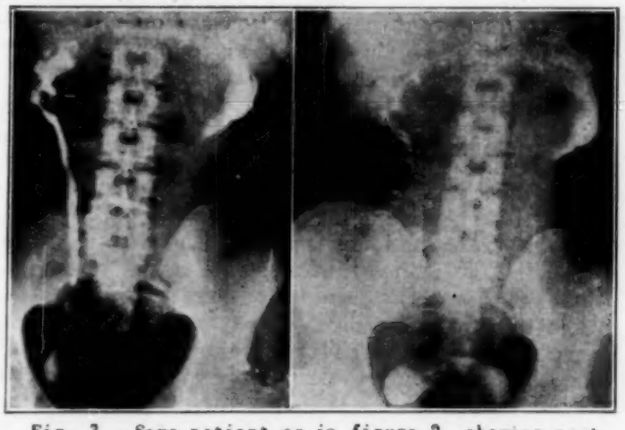

Fig. 3.—Same patient as in figure 2, showing postoperative result.

SUBSEQUENT FINDINGS IN TEN PATIENTS OPERATED ON IN 1942

Of the 7 patients subjected to 11 Foley Y plastic operations (4 bilateral), reported by Henline and Menning in 1942, 7 kidneys remain entirely satisfactory, 2 are considered fair, and 2 poor. These results compare favorably with reports by Moore[6] and Walters, Cabot and Priestly,[7] who reported about 20 per cent failure. Our 2 failures were in 1 patient who had previously had a Rammstedt repair on his right kidney with drainage for only fifteen days. Subsequently Foley Y plastic repair on both organs failed to save his severely damaged kidneys, and he died four years later.

COMMENT

Although each case of ureteropelvic obstruction must be considered individually, experience suggests that the greatest number of cases result from actual narrowing within the ureter as it leaves the renal pelvis. This stenosis may be difficult to visualize even after the renal pelvis and ureter are exposed at operation because it is the caliber of the

6. Moore, T. D.: Late Results of Plastic Surgery in Hydroenphrosis, South M. J., 35: 425-433, 1942.
7. Walters, W.; Cabot, H., and Priestley, J.: Operative Results in Non-Calculous Hydronephrosis: Results in Seventy-One Plastic Operations, J. Urol. 38: 688-693, 1937.

lumen of the ureter which must be determined. The ureter may be normal in appearance from the outside but constricted within. One should not be content to sever aberrant vessels or adhesions or bands, but should also determine the caliber of the ureter. Unless this is faithfully done in each case, the results will be disappointing in many instances.

Not all patients with hydronephrosis have ureteropelvic obstructions. A stenosis in the midureter or at the ureterovesical junction will produce hydronephrosis. It is even more common to find a dilated renal pelvis resulting from a small stone lodged along the ureter. Therefore, accurate localization of the obstruction at the ureteropelvic junction is essential before treatment be undertaken.

An excretory urogram may indicate obstruction at the ureteropelvic junction. However, it is our practice to rely only on retrograde pyelograms for the diagnosis of these obstructions. Cystoscopy permits an evaluation of divided renal function and, at the same time, the taking of bilateral pyelograms. The size of the hydronephrosis and the area of obstruction are more clearly outlined. A ten minute delayed roentgenogram after pyelography will reveal retained contrast medium in the renal pelvis. It is typical for the renal pelvis to be well outlined in this roentgenogram, but the ureter is usually empty of contrast medium. One may, therefore, rely on the obstruction's being present at the junction of the ureter with the pelvis.

The operative procedure should adequately correct the deformity. In some instances, various other operations are necessary to attain this result, but in our experience the majority of cases lend themselves to the Foley Y plastic repair. The exact type of repair is probably less important than the longitudinal incision of the stenosed area, with prolonged nephrostomy drainage and use of the splinting catheter. Davis[8] has advocated only the incision of the stenosed area, but has insisted on splinting the ureter for sufficient time to permit it to proliferate and grow around the splinting catheter. He called this procedure "intubation" and reported good results in his cases. Cabot,[9] Ormond[10] and Foulds, among others, advised prolonged drainage and ureteral splinting, with which Davis and we agree. The ureteral catheter acts as a scaffold around which the ureter may re-form and Gibson[11] compared its use to the use of a splint in a fractured bone by the orthopedic surgeon.

Unless necessity demands, we prefer not to sever the ureter completely from the pelvis and reimplant it in a dependent portion of the pelvis. In a few cases this has been necessary, but our results indicate that, at least for some months, the renal pelvis will not drain as well as in those cases in which the ureter has only been incised longitudinally. It is our impression that, at least temporarily, the severed nerves prevent normal peristalsis.

Although our results in this series of cases are not all that one would desire, they are far superior to those achieved in cases in which these principles were not followed. Our attempt should be to reestablish renal drainage, thus preventing continued renal damage and conserving the remaining functioning renal tissue.

SUMMARY AND CONCLUSIONS

Gastrointestinal symptoms, even in the presence of normal urine, may indicate an obstructive renal syndrome. The diagnosis of obstruction at the ureteropelvic junction is made by retrograde pyelography with, in addition, a ten minute delayed roentgenogram. Most ureteropelvic obstructions are due to narrowing of the lumen of the ureter even though aberrant vessels, bands and adhesions may also be present.

Plastic operations should only be performed when sufficient renal tissue remains to sustain life. The Foley Y plastic operation has been more successful in our hands than other procedures, but only when combined with nephrostomy drainage and the use of a splinting ureteral catheter for six weeks.

Results should be evaluated, not by relief of symptoms alone, but by improved renal function and evidence of improved drainage of the renal pelvis by retrograde pyelogram and a delayed roentgenogram. These patients should be followed for several years before final results are tabulated.

The operative mortality should compare favorably to that in other renal surgery.

Renal calculi may form during prolonged nephrostomy drainage and, if discovered before the tube is removed, may occasionally be dissolved by irrigation. Subsequent nephrectomy became necessary in 2 cases. Poor results were obtained in 10 per cent of the cases followed. Satisfactory results, or improvement, were obtained in the remaining 90 per cent of cases.

ABSTRACT OF DISCUSSION

DR. JOHN M. PACE, Dallas, Texas: Dr. Herbst has brought to us an instructive paper on a most unusual and rarely recognized anomaly. That the incidence of the posterior renal pelvis is low is brought out by his study of postmortem material which failed to demonstrate the anomaly in one hundred anatomic examinations. The urographic description of the gun barrel pelvis with the ureter lateral to the medial border of the kidney is important; however, this roentgen-

8. Davis, D. M.: Intubated Ureterotomy, Surg., Gynec. & Obst. 76: 513-523, 1943.

9. Cabot, H., in discussion on Pilcher, F., Jr.: The Treatment of Bilateral Congenital Hydronephrosis, Proc. Staff Meet., Mayo Clin. 12: 279-283, 1937.

10. Ormond, J. K.: End Results of Plastic Operations on the Kidney Pelvis for Hydronephrosis, Am. J. Surg. 38: 70-79, 1937.

11. Gibson, T. E.: Hydronephrosis: Classifications and Plastic Repair of Ureteropelvic Obstruction, Surg., Gynec. & Obst. 80: 485-496, 1945.

ographic picture was not constant. Should one suspect a posterior pelvis in a kidney which meets the usually accepted criteria for nephropexy, I feel that the patient should be advised that a nephrectomy may be deemed advisable for the reasons so admirably given by Dr. Herbst. Dr. Herbst is to be congratulated for bringing to our attention a renal anomaly which has not been previously recognized as a hazard in nephropexy.

DR. CLARK M. JOHNSON, San Francisco: In unilateral ureteropelvic obstruction, any type of repair is doomed to failure in the presence of complete compensatory hypertrophy of a normal mate. This is determined by roentgen evidence and accurate estimation of the relative function. Dr. Henline's observation that any kidney which shows evidence of being able to sustain life in the absence of its mate is merely another way of stating the same thing. At the original examination one may find the function greatly reduced on the affected side. By leaving a ureteral catheter in place for twenty-four to forty-eight hours and rechecking the function of the separate kidneys, one may find even in this short length of time considerable improvement in the function of the affected kidney. This is good evidence that the mate is not completely hypertrophied and that the affected kidney may be saved. I wish to stress that there is no one method of relieving all types of ureteropelvic obstructions. I do not concur with those who use small splints but prefer the largest splint that the ureter below the obstruction will admit. I do not believe that it makes any difference what type of repair is used, as long as the obstructing area is incised longitudinally and the redundant pelvis resected, giving a good funnel-shaped outlet. I prefer to use few or no sutures, and in most instances leave the incised ureter wide open over the splint. It is true that simple division of aberrant vessels or bands will not relieve most obstructions because there is usually an intrinsic narrowing of the ureter due to muscular hypertrophy which is not obvious from the surface. This may be congenital and the sole cause of the hydronephrosis, or secondary to the external pressure and the increased muscular effort required in peristalsis. The presence of infection does not mean that the obstruction cannot be relieved and function restored. This is particularly true when the obstruction is bilateral. The principles of repair as set forth by Dr. Henline, using nephrostomy and ureteral splinting, will be successful in most cases, provided that proper cases are selected. As yet one cannot be certain from the tests at hand which cases are amenable to repair. This must often be left to the surgeon's judgment at the time of operation, and even then one may be wrong.

DR. JAMES SARGENT, Milwaukee: Roy Henline was one of the pioneers in plastic surgery in hydronephrosis. He has made one particularly important point, and that is that aberrant blood vessels and bands of adhesions play a relatively unimportant role in hydronephrosis. The disease is caused primarily by an anatomic atresia at the ureteropelvic junction. Proper correction depends on reopening of the lumen of the canal whether or not an aberrant vessel is present. He has made another point that is extremely important. That is the fact that gastric symptoms often are important and sometimes are the only symptoms indicative of hydronephrosis. I recall an officer in the Navy who had hidden his history of nine years of dyspepsia in order to get into the service. Under heavy duty, he broke down and was more or less constantly on the sick list. He had repeatedly negative gastrointestinal and gallbladder studies, and finally came up for medical discharge. Excretory urograms were run and a fairly sizable hydronephrosis found. Its correction relieved his dyspepsia for the first time in ten years. There was nothing in that man's clinical history that would have led any one to suspect that he had had hydronephrosis - except dyspepsia. Both Dr. Henline and Dr. Johnson have stressed the value of plastic surgery in hydronephrosis. Any kidney that has any life in it at all, provided it does not have a prohibitive pathologic condition, should undergo a surgical corrective procedure. I am sure that I want to go along with the two preceding speakers on the size of ureteral catheter splints and the length of time that they are left in. The service of the catheter splint is one of alinement during the time that postoperative fixation of tissue occurs, and unless there is extravasation at the site of the plastic operation, the tissues are fairly well set within a matter of days. In my experience splinting for eight or ten days has proved adequate, and the smaller the inlying splint, the better.

DR. DAVID M. DAVIS, Philadelphia: As I look back to what ureteropelvic surgery amounted to twenty-five years ago, I am amazed at the progress that has taken place. It has taken place gradually, so that one does not notice it from year to year but it is a fact that twenty-five years ago ureteropelvic surgery was entirely the property of a few daring souls. Too often when one kidney was affected nephrectomy had to be performed. When both kidneys were involved, one had to be content with palliation, which did not do much to prolong the patient's life. Now, everything is changed. Dr. Henline and his associate produce a series of cases in which they obtained successful results in 65 per cent by any criterion and in 90 per cent so far as obtaining relief of symptoms is concerned. That changes the entire status of things. We are no longer privileged to wait and watch in cases of hydronephrosis, even though the hydronephrosis be slight, even though the symptoms be slight, even when there is no infection. Many times it is the onset of infection which causes symptoms to arise. Now, we are faced with an entirely different problem, and a much more congenial one, I am sure, to every surgeon; that is to find out the best way to operate on these patients and get the largest percentage of success. I am confident that in another twenty-five years the percentage of success will rise even higher than it is now. I am one of the most enthusiastic devotees of using splints, and at the meeting of the American Urological Association we hope to present a "roundup" of all of of our results in human patients as well as in experimentation on animals. These experiments will be interesting to everybody, whether believers in sutures or not, because they will show some data on exactly how the ureter heals in the presence of a splint, and with or without the removal of a good deal of tissue from the ureteral wall; what happens when the splint is left exposed to the periureteral tissues and how the ureter reconstructs itself and how long it takes. These data may help us to solve the question which Dr. Sargent has mentioned, what is the best length of time to leave the splint in place and what is the best size of splint to use.

DR. THOMAS D. MOORE, Memphis, Tenn.: Dr. Henline has presented an excellent review of his extensive experience in the conservative treatment of hydronephrosis. In the differential diagnosis of hydronephrosis not only is normal urine common, as mentioned by Doctor Henline, but also a preliminary roentgenogram frequently reveals nothing abnormal. The combination of these two negative findings thus may become misleading and guide one away from consideration of the urologic problem. Several years ago I was invited to contribute to a symposium on hydronephrosis by discussing the late results of conservative surgery. A review of the literature at that time revealed approximately 20 per cent failures. Therefore, when confronted with the problem of conserving the hydronephrotic kidney there was 1 chance in 5 that a conservative plastic procedure would not be successful. The figures presented by Dr. Henline indicate a definite change for the better, due perhaps not only to improved technic but to a wiser selection of cases and to a better means of controlling infection by the judicious use of chemotherapy and antibiotics. The prospects for a good result from conservative surgical treatment are not nearly so good when dealing with hydronephrosis of the intrarenal type, in which the dilation is confined chiefly to the calices. This type of hydronephrosis is accompanied by more parenchymal damage and thus a greater degree of impairment of renal function. The extrarenal type of the disease is more amenable to conservative efforts. It is always interesting to hear the report of successful cases; the failures should be equally or more interesting. In the discussion of causes of failures much can be learned. I recall a case in which the immediate result seemed promising but unfortunately I underestimated the importance of an adynamic ureter. The hydronephrosis was of a large extrarenal type in which the ureter appeared decidedly stenosed at the ureteropelvic juncture, below which it followed a tortuous course, accompanied by moderate ureterectasis. At operation the stenosed segment was resected and the ureter reimplanted in the pelvis. In spite of this the hydronephrosis was progressive and after a year nephrectomy was necessary. A year later a retrograde ureterogram revealed persistence of the pronounced degree of diffuse ureteral dilatation It was evident that the adynamic ureter was the probable cause of failure in this case.

DR. A. HYMAN, New York: It seems to me that the pediatricians are still remiss in recognizing these conditions. Despite all the articles and books that have been published on pediatric urology, the pediatricians often fail to make the diagnosis of congenital hydronephrosis. When they have a child with normal urine, they seem to forget that such a condition can exist. In a number of cases in children that we have had, the only symptoms have been abdominal cramps. A few of these children have been operated on for appendicitis. So I think this point should be brought home to the pediatricians. Some men believe in splinting for six to eight weeks, and longer. Others splint for eight to ten days. In a few articles, there is no mention of splinting at all. I was interested to hear Dr. Davis say that they are doing experimental work along these lines, because there has been little experimental work to tell us just what the changes are in the ureter and the process of healing and how long these ureters should be splinted. I am getting away from the long splinting and feel that two weeks at the most is sufficient. As to the second question, is it necessary to resect a redundant pelvis? In going over the literature, a number of men think it is necessary to do so and others do not. I feel that a large redundant pelvis should be resected. We should be more and more conservative in the surgery of hydronephrosis, especially now that we have antibiotics and sulfonamide drugs. Where previously nothing much could be done to combat infection, with these methods at our disposal the results of plastic procedures should be better and better as the years go by.

DR. WILLIAM P. HERBST, Washington, D. C.: I want to thank Dr. Pace for his discussion and to describe one aspect of the mobilization of these kidneys. As one mobilizes a kidney, the thumb falls into a depression in the posterior wall. This makes the diagnosis.

DR. ROY. B. HENLINE, New York: I am extremely pleased that this paper brought forth so many comments, regardless of whether they agreed or not. I am also pleased that some of them did agree to a great extent That was the primary purpose of this presentation. Dr. Johnson made two or three interesting points which I thoroughly agree with but which were perhaps expressed in just a little different way. I agree that the larger splinting is preferable. I have never seen any untoward effects from use of as large a splinting catheter as would fit down the ureter. In other words, I have never seen any evidence of necrosis or damage to the ureter following this procedure. I believe Dr. David Davis' experimental work will help solve the problem as to how long the splinting catheter should be left in place. I am convinced that in none of these cases can the sutures be watertight and that there is always some leakage at the suture line which is minimized by the nephrostomy drainage. On the other hand, as these sutures are absorbed the approximated edges should heal sufficiently to prevent further urinary extravasation. This is benefited by nephrostomy drainage which promptly drains the secreted urine and prevents any pressure within the renal pelvis. If the approximated edges are sufficiently healed before the nephrostomy tube is removed, there will be no urinary leakage to produce scar tissue around the repaired area. However, this problem will probably be solved by experimental work, some of which Dr. Davis has done I want to thank you all for the excellent discussions that this has provoked, and, if nothing else has been left in your mind from this presentation, I hope that we may no longer hear from the urologist particularly, and also from the roentgenologist, that there is a ureteropelvic obstruction caused by an aberrant vessel. I think that should be deleted to a great extent from the literature.

Queen Victoria and Lord Lister.—On one occasion Lord Lister told me that Queen Victoria had written to him and asked him, as president of the Royal Society, to do all in his power, by speaking and writing, to stop vivisection. He knew that his reply would be very disappointing to the Queen. He sent a very carefully worded reply, saying that it was a vital necessity for the good of Her Majesty's subjects that vivisection should be allowed to continue He further respectfully assured the Queen that vivisection in this country was under the careful supervision and control of Her Majesty's Government. After receiving this letter the Queen took no further notice of him —Cheatle, Sir Lenthal, Annals of the Royal College of Surgeons of England, January 1948.

Clinical Notes, Suggestions and New Instruments

HYPERKERATOSIS AND ONYCHOLYSIS AFTER USE OF NEW NAIL COSMETIC

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and
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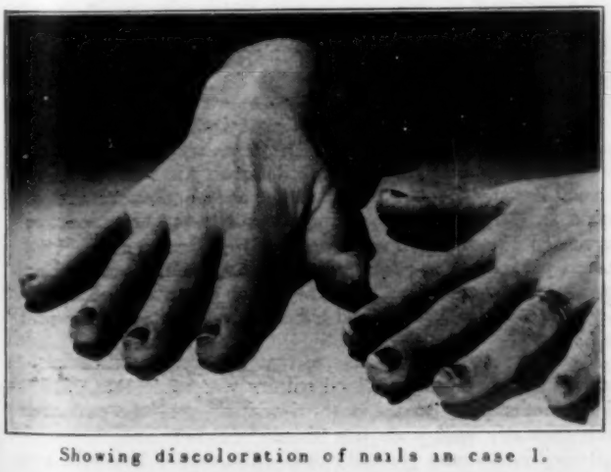
A new product "everon," has recently been introduced for use in lacquering nails. Apparently it is applied to the nail before the enamel for the purpose of producing a better adhesion of the enamel to the nail substance. The chemical nature of this product is not known to us beyond the fact that it contains some synthetic resins. . .

Two patients are the basis for this report; their clinical condition and history are virtually identical:

Within three days of the use of "everon" (in one after a first application and the other after a fourth application) the tips of all fingers became tender and slightly swollen; then followed changes in all fingers leading to subungual hyperkeratosis and the beginning in some nails of onycholysis. Attempted removal of the enamel even within a week of its application disclosed a permanent staining of the nail.[1]

Patch tests with "Everon" on both these patients elicited positive reactions.



Showing discoloration of nails in case 1.

A photograph of the nails in 1 case is supplied. Note the discoloration which remains after the enamel has been removed with the usual solvents.

Opportunity has not as yet been afforded to study or analyze the mechanism of the production of the damage. The severity of the damage and the length of time required for recovery—if complete and permanent recovery does ensue—demand quick publicity of these facts to bring a halt to continuing exposures.

1. The discoloration was revealed to be blood pigment on undersurface of nail.

SUBACUTE BACTERIAL ENDOCARDITIS
Report of Two Cases

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and
CHARLES CRAMER, M.D.
Jackson Heights, N. Y.

One of the remarkable discoveries of medical science has been penicillin, and probably the best example of its value is in the treatment of subacute bacterial endocarditis. Any doubt that there was reason to dread the disease will be quickly dispelled if one reads the report of the cases from Peter Bent Brigham Hospital.[1] From 1913 to 1937 there were 237 cases with no recovery. Almost universally the experience with subacute bacterial endocarditis has been the same, although Libman and Friedberg[2] reported 4 per cent spontaneous cures.

Up to four years ago subacute bacterial endocarditis was considered an incurable disease; the percentage of cures has been changed, and at present over 90 per cent of patients with the disease recover when sufficient penicillin is used. When one meditates on the fact that the early reports stated that penicillin was ineffectual in the treatment of subacute bacterial endocarditis, the importance of carefully recorded laboratory and clinical data becomes obvious.

REPORT OF CASES

CASE 1.—T. W., a 36 year old Negro, was first admitted to Flushing Hospital on March 24, 1944. One week before admission he was awakened during the night with sudden substernal pain. For seven hours the pain was severe, radiating to the right side of the neck; after this the pain gradually lessened. The patient stated that he had had fever, but did not know how high his temperature had been. The past history was significant in that he had had rheumatic fever at the age of 14 years and suffered recurrent pains in the joints for the subsequent three years. Three weeks prior to admission he had "rheumatic pains" in both knees, lasting two weeks.

Examination revealed a well developed muscular man who was in no acute distress. The temperature was 100.2 F. (rectal). No petechiae, Osler nodes or Janeway spots were noted. Examination by percussion revealed the heart to be enlarged on the left side (later confirmed by roentgenogram). The rhythm was regular and the rate 88 beats per minute. A loud harsh systolic murmur was heard over the mitral area transmitted laterally and posteriorly. No diastolic murmur could be detected. The lungs were clear. Liver and spleen were not palpable. No enlargement of the joints was noted, but the knees were tender on motion.

On admission the white cell count was 14,050, with 82 per cent polymorphonuclear leukocytes. The hemoglobin content was 76 per cent (12.9 Gm.). The urine was normal, and the Kahn reaction was negative. The temperature ranged between 100 and 102.6 F. On the fourth hospital day treatment with sodium salicylate in full doses was started, but no drop in temperature or subjective improvement resulted. On April 3, blood culture revealed Streptococcus viridans, 400 bacteria per cubic centimeter.

Since the supply of penicillin was limited and preliminary reports on the treatment of subacute bacterial endocarditis with penicillin were unfavorable, the drug could not be obtained. It was, therefore, decided that sulfadiazine be given while attempts were made to obtain penicillin from the National Research Council. On April 5, the thirteenth hospital day, sulfadiazine therapy was started. The initial dose was 4 Gm., followed by 2 Gm. every four hours for four doses and 1 Gm. every four hours thereafter. The drug was given for sixteen days, and satisfactory levels of sulfadiazine in the blood, ranging from 10.5 to 21.3 mg. per hundred cubic centimeters, were obtained. After forty-eight hours of treatment with sulfadiazine, the temperature dropped to normal and remained so. In spite of the fact that the temperature remained normal for two weeks, two repeated blood cultures revealed S. viridans. Treatment with sulfadiazine was discontinued at this time, and during the following eight days the temperature began to rise

1. Favour, C. B.; Janeway, C. A.; Gibson, J. G., and Levine, S. A.: New England J. Med. 234: 71-77, 1946.

2. Libman, E., and Friedberg, C. K.: Subacute Bacterial Endocarditis, edited by H. A. Christian, New York, Oxford University Press, 1941.

slowly. Also during this eight day period, six more blood cultures were reported positive for S. viridans.

Penicillin therapy was started on the thirty-seventh hospital day, nine days after the termination of treatment with sulfadiazine; 200,000 units were given daily for thirteen days, for a total of 2,600,000 units. Within twenty-four hours after treatment with penicillin was started, the temperature dropped to normal again and continued normal for the remainder of his hospital stay. During this thirty-three day period, eighteen additional blood cultures were obtained and all were reported negative.

Following discharge the patient attended the cardiac clinic and remained asymptomatic. On June 27, approximately seven weeks after termination of penicillin therapy, the blood culture again revealed S. viridans.

Because of the difficulty in obtaining penicillin, the patient was sent to the Queens General Hospital, where another course of penicillin was administered. This consisted of 2,500,000 units given in a daily divided dose of 200,000 units, which was almost identical with the previous course, and again the blood cultures became negative. The patient was followed up in the Flushing Hospital Cardiac Clinic after his discharge from Queens General Hospital.

Blood cultures on September 19 and October 3 were positive for S. viridans. The patient was hospitalized in Flushing Hospital, where the third and last course of penicillin was given. The supply of penicillin had been increased considerably, and although the same daily amount, 200,000 units (16,000 units every two hours), was given, treatment was continued for a longer period of time, namely, for thirty-nine days. During this time a total of 7,800,000 units were given. The blood cultures became sterile immediately after treatment was resumed and have remained sterile during the past three years (to date of writing).

CASE 2.—W. G., a 53 year old white man, three weeks before admission experienced severe sinusitis accompanied with considerable drainage, fever and pains in the lower part of the back and in the legs. When the fever continued he was hospitalized by his physician. One blood culture was reputedly negative. Penicillin was given, the dosage being 50,000 units every three hours for two days, followed by 30,000 units every three hours for five days. After two days of penicillin therapy the temperature returned to normal, and the patient was discharged four days after the seven day course of treatment with penicillin. Two days after his discharge the fever returned, and he was seen by one of us (C. C.) and admitted to Flushing Hospital on Nov. 25, 1946.

Examination revealed a well developed man with warm skin and in no acute distress. The temperature was 102.8 F. (rectal). No embolic phenomena were discovered. Examination by percussion revealed that the heart was not enlarged; this was confirmed later by a roentgenogram. The rhythm was regular, and the rate was 102 beats per minute. A long rough systolic murmur was heard over the precordium transmitted to the axilla and the neck. The liver and the spleen were not palpable.

On admission the white cell count was 7,050, with 74 per cent polymorphonuclear cells. The urine was normal. Three blood cultures made on the first three hospital days revealed Streptococcus viridans. Sensitivity to penicillin was evidenced with .08 unit per cubic centimeter.

From the day of admission, November 25, to November 29, the daily temperature range was between 99 and 103.4 F. Treatment with penicillin was started on November 29, and within twenty-four hours the temperature dropped to normal. The temperature continued to be normal for the remainder of his hospital stay except for three rises to 101.4, 101 and 102 F. on December 10, 22 and 27, respectively. On several occasions he complained of pains in the tips of his fingers and toes, but other than tenderness to pressure no objective signs were observed. There was no correlation between the three elevations of temperature during treatment and the tenderness of the tips of the fingers and toes.

Penicillin was administered as follows:

Units	Interval (Hr.)	Duration
100,000	3	24 hr.
71,400	3	48 hr.
62,500	3	9 days
41,600	2	28 days
30,000	2	5 days

All penicillin was given intramuscularly. The longest period of treatment was for thirty-seven days, with 500,000 units being given every twenty-four hours. During this period the frequency of injection varied from every three hours for nine days to every two hours for twenty-eight days

COMMENT

The value of in vitro sensitivity tests performed on the isolated organism has been proved. The treatment in the first case presented was carried out while these tests were still in the experimental stage and before their definite value had been demonstrated.

Although the response indicated a sensitive organism, actually the patient conducted a sensitivity test in vivo. The first two courses, when approximately 2,500,000 units of penicillin were given, sterilized the blood stream but not the growth on the cardiac valve. The third and last course of penicillin produced a cure, and, although the daily amount was the same, it was given over a much longer period of time than the two previous courses. In this respect observations in this case differ from those usually reported by other authors.[3]

We cannot explain the response of the first patient to penicillin in the prolonged third course, with the same daily dose being used. For best results sufficient daily dosage should be given to raise the level of the drug in the blood to at least five times the sensitivity level of the organism.[4]

There can be little doubt that the first patient is cured. He has been well from a clinical and bacteriologic standpoint for over three years. He has been engaged in a gainful occupation for the past year and a half, working actively in a laundry. He has never had any signs of congestive cardiac failure and is now completely free from symptoms. The question arises as to the length of time which must elapse before a patient can be considered cured. According to Christie[5] relapses usually occur within thirty days after cessation of treatment and are rare after fifty days. Hunter[4b] expressed the belief that if the blood cultures made during the first two weeks after completion of treatment remain sterile one can be reasonably hopeful of cure.

In the first case presented the blood culture again became positive seven weeks after treatment with penicillin was stopped and four weeks after the second course was given.

In the second case, after a brief incomplete course of penicillin was administered at another hospital, the patient responded to a single course with large daily doses. Because of the occasional rise in temperature and pains in the tips of the fingers and toes, treatment was continued for forty-five days. According to Hunter,[4b] who stated preference for large daily amounts for three weeks, some patients continue to have fever, elevated sedimentation rate, leukocytosis and embolic phenomena for several weeks.

It seems reasonable to assume that the second patient also is cured. The last positive blood culture was made Dec. 11, 1946, nine months prior to the date of writing, and the patient has been clinically well since that time.

Penicillin fastness probably does exist, but it has been overemphasized. As more statistics accumulate, one seems justified in stating that the number of instances of resistance to penicillin is small. The first case presented offers a striking example of this fact. Although no increase in daily dosage was used, the organism proved sensitive after the third course of penicillin.

The upper limit of human tolerance to penicillin has not been determined. Hunter[4b] stated that doses as high as 20,000,000 units a day have cured the disease in some patients, when treat-

3. (*a*) White, P. D.; Mathews, M. W., and Evans, E.: Ann. Int. Med. **22**: 61-74, 1945. (*b*) Bloomfield, A. L., and Halpern, R. M.: Penicillin Treatment of Subacute Bacterial Endocarditis, J. A. M. A. **129**: 1135-1141 (Dec. 22) 1945. (*c*) Lawson, M. H., and Hunter, T. H.: Ann. Int. Med. **24**: 170-185, 1946.

4. (*a*) Favour, Janeway, Gibson and Levine.[3] (*b*) Hunter, T. H.: Mod. Conc. Cardiovasc. Dis., 1946, vol. 15.

5. Christie, R. V.: Brit. M. J. **1**: 381-383. 1946.

ment for many months with from 2,000,000 to 10,000,000 units daily has failed. Loewe[6] treated 5 patients with 40,000,000 units per day; 3 of these recovered.

While the penicillin sensitivity test is a relatively simple one and can be performed in all laboratories without difficulty, the same cannot be said of determination of the level of penicillin in the blood. This latter test can be performed when a standard organism is involved. Unless considerable work is being done on this type of disease, it may not be found practical in every hospital to conduct determinations of the levels in the blood. In such circumstances, as in the second case presented, it becomes necessary that arbitrary decisions be made. For sensitivity up to 0.1 unit of penicillin per cubic centimeter a dosage between 500,000 and 1,000,000 units in twenty-four hours usually proves efficacious. According to Dawson and Hunter[3c] a daily dose of 500,000 units administered by constant intramuscular drip produced an average serum level of 0.2 unit per cubic centimeter, with a range of values from 025 to 0.8.

HODGKIN'S DISEASE COMPLICATED BY PREGNANCY

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and
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Forty-nine infants borne of mothers with Hodgkin's disease have been reported in the literature[1] We wish to report a case of a mother with Hodgkin's disease who has borne 2 children, making a total of 51 infants so far reported.

Report of Case

The patient was first seen in the outpatient department of the Goodrich General Hospital on July 3, 1939, at the age of 15 years, with chief complaints of nausea, vomiting and abdominal pain of five days' duration. She had not menstruated. At the age of 11 she had been raped and had contracted gonorrhea which had been successfully treated elsewhere. Findings were negative at this time except for a few red blood cells and white blood cells in the urine.

She was again seen in the outpatient department on Jan. 6, 1940, with similar complaints except that there had been no vomiting and the symptoms had been present only two days. Her temperature was 100 F., pulse rate 100 per minute and respiration rate 25 per minute. There was tenderness over the urinary bladder. Urinalysis showed a few red blood cells and white blood cells. Examination of the blood revealed a leukocyte count of 11,900 with 51 per cent polymorphonuclear cells, 3 per cent stab forms, 33 per cent lymphocytes, 8 per cent monocytes and 5 per cent eosinophils.

Four years later, on March 19, 1944, the patient was seen with the complaint of a growth in the lower part of the left side of her neck. She had first noted this tumor after Christmas in 1943, at which time it was about the size of a hickory nut (1¼ to 2 cm.). At the time of examination the tumor was about 4 cm. in diameter and was freely movable. Her temperature was 99 F , pulse rate 102 per minute; the blood leukocytes were 12,800, the urine was normal and a roentgenogram of the chest and the reaction to a blood Kahn test were negative.

On April 3, 1944, two large left supraclavicular nodes were removed. The pathologist's report on this tissue was: "Lymphoblastoma of the Hodgkin's disease type. Eosinophils were present in unusual numbers. There were numerous Dorothy Reed giant cells and early fibroblastic proliferation." The patient was sent to the University Hospital at Ann Arbor, Mich., for roentgen therapy. At Ann Arbor no other evidence of the disease, except for the left supraclavicular nodes, could be found.

She returned to us on June 2, 1946, for a marriage certificate. On July 16, she was found to be eight months pregnant, and the left supraclavicular nodes were again found to be enlarged. She was advised to return to Ann Arbor for further treatment but did not cooperate well, taking only one of the six proposed roentgen treatments. However the pregnancy progressed normally The maximum blood pressure reading was 108 systolic and 55 diastolic; the maximum weight, 179 pounds (81.2 Kg.); the urine was normal on all occasions. At 12:45 p.m., on August 23, the patient delivered a normal-appearing, 7 pound (3 175 Gm.) baby girl The postpartum course was uneventful except for a daily elevation of temperature to 100 F. The mother and baby were discharged from the hospital on September 1.

On December 9, the left supraclavicular nodes were again found to be enlarged. At this time examination of the blood revealed: red blood cells, 4,300,600; hemoglobin, 85 per cent, and white blood cells 11,180, with 41 per cent polymorphonuclear cells, 10 per cent stab forms, 26 per cent lymphocytes, 11 per cent mononuclear cells, 10 per cent eosinophils and 2 per cent basophils. She was advised to return to Ann Arbor for more roentgen therapy.

The patient returned on March 12, 1947, with complaints of bloating of the stomach, nausea and vomiting, difficulty in swallowing and regurgitation of food. She was again pregnant. Her weight was 146 pounds (66.2 Kg.). Fluoroscopic examination of the esophagus, stomach and duodenum during the ingestion of a barium meal on April 4 gave negative results. There were no signs referable to a toxemia of pregnancy.

The second pregnancy was complicated by these gastrointestinal disturbances. At 9:20 p.m., on June 3, the patient delivered a 3 pound, 15¼ ounce (1,800 Gm.) boy. During her hospital stay post partum the mother showed a daily elevation of temperature to, or above, 100 F. The mother left the hospital against advice; the baby was discharged, in good condition, on August 1.

On August 11, the patient returned to us with the complaint of vomiting everything that she attempted to eat. She was 23 years of age and weighed 100 pounds (45.4 Kg.); (her maximum, nonpregnant weight had been 154 pounds [69.9 Kg.]). The patient was returned to Ann Arbor, where she was hospitalized from August 12 to August 24. On a regimen of bed rest, supportive therapy, tincture of belladonna and phenobarbital she improved and gained 12 pounds (5.4 Kg.) weight.

At the present time (March 27, 1948), the patient is still doing her housework and her 2 babies are developing normally.

6. Loewe, L.: Personal communication to E. F. Bland. Am. Pract. 1:504, 1947.

From the Goodrich General Hospital.

*Now resident in orthopedic surgery, The Norwalk Hospital, Norwalk, Conn.

1. Gilbert, R.: Grossesses au cours de lymphogranulomes traites par roentgentherapie: Sort des meres et des enfants, Schweiz. med. Wchnschr. 75: 53-58 (Jan. 20) 1945. Perrier, H.: Pregnancy in Course of Lymphogranulomatosis. ibid. 75:1014-1015 (Nov. 17) 1945. Palacios, Costa, N.: Chayanne, F. C., and Zebel Fernandez, O.: Hodgkin's Disease Complicating Pregnancy: Study Apropos of Case, An. D. ateneo, Buenos Aires, 1945, pp. 127-137.

DISPOSABLE, FINE MESH FILTER FOR BLOOD AND PLASMA

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The earliest investigations into the properties of stored blood for purposes of transfusion clearly revealed the necessity for careful filtration of such material before use. That fibrin particles, clumps of white blood cells or disintegrated platelets, and even small blood clots were to be expected in blood stored over a relatively few hours was quickly apparent.[1] However, a few deaths with multiple pulmonary emboli from this material were reported before the extreme importance of adequate filtration of stored blood and plasma was fully appreciated. A common method of filtration in the early days was that of simply pouring the blood through several layers of ordinary sterile gauze.[2] This method, of course, was clumsy, open to contamination and inadequate in removing small particulate matter. Furthermore, considerable cotton lint was always added to the filtrate. Undoubtedly, many of the so-called pyrogenic reactions to transfusions in the early days of blood storage were due to the numerous small particles which were not removed before injection.

After many materials such as rayon, bolting silk,[1] glass beads,[3] "fiberglas" and various grades of metal cloth[4] were extensively tried, it became apparent that "monel" or stainless steel wire cloth filters of adequate dimensions were, on the whole, most suitable. As a rule, 100 to 200 mesh stainless steel wire cloth, formed into closed cylinders and enclosed in a glass housing, were used. The cost of such stainless steel filters was such that repeated use was, of course, necessary, and hence the problem of efficient cleaning of these filters each time after use became difficult and the procedure somewhat costly. Considered opinion from numerous sources indicated that even after scrubbing with a fine brush these filters had to be soaked several hours in concentrated nitric acid, then rinsed several times in fresh, distilled water before they could be considered at all pyrogen free. Obviously, an inexpensive and disposable blood filter, possessing the necessary qualities of fineness, nontoxicity and ease of adaptibility to the present transfusion equipment, has been greatly needed.

Just before the close of World War II, having tried all the materials mentioned, starting with the earliest days of blood banking, and finding none entirely suitable, we were fortunate in procuring a "bakelite"-impregnated filter paper, prepared by the Fabricon Products, Inc., of Detroit. Though this early material did not prove suitable for blood transfusion purposes, nevertheless, the principle of phenolic resin impregnated materials for filtering seemed so clearly applicable to blood filter construction that a search for a more suitable base was begun at once. With salvaged red blood cells from the wartime Red Cross blood donor service, dozens of fabrics were tested. It was finally apparent that cotton cloth constructed with threads of sufficiently small dimension and uniformity, and of a mesh of 90 to 100 squares per inch, when impregnated with heat-hardening "bakelite" resin, was ideal for filtering human blood. Because of the characteristic of polymerizing under heat to a fixed contour, it was possible to pleat

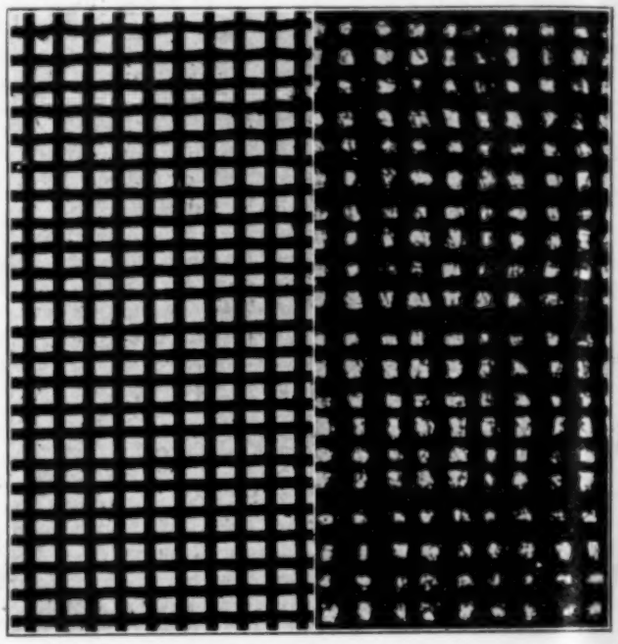

Fig. 1.--Left, standard 100 mesh stainless steel wire cloth. Right, "bakelite"-impregnated cloth used in disposable filter.

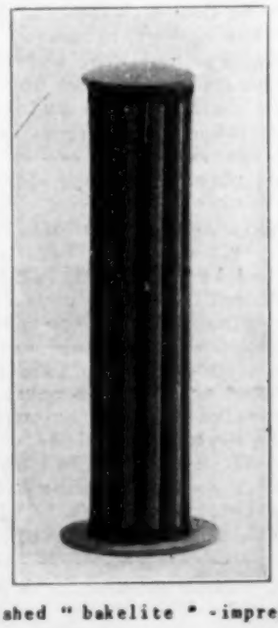

Fig. 2.--Finished "bakelite"-impregnated filter.

such filters, thus more than doubling the filtering surface of a given cylinder and also providing a more efficient filtering contour. All lint contained in the cotton fabric was completely bound by the resin and, indeed, provided an additional barrier to even the smallest particle of fibrin or clot.

While phenolic resins have had numerous applications in medicine nnd have proved their relative

1. Fantus, B.: Blood Preservation Technique, J.A.M.A. 111: 317 (July 23) 1938.
2. Wilson, T. I., and Jamieson, J. M.M.: Transfusion with Stored Blood, Brit. M. J. 1: 1207 (June 4) 1938.
3. Vaughn, J. M.: Medical Research Council Blood Transfusion Outfit, Brit. M. J. 2: 1084 (Dec 2) 1939.
4. Cooksey, W. B. Blood Apparatus, Am. J. Surg. 49: 526 (Sept.) 1940.

insolubility in injectible or body fluids and have shown no toxicity by any ordinary contacts with human tissue, nevertheless, before these filters were actually used for transfusions, careful animal testing was carried out by intravenous injection into rabbits of dextrose and sodium chloride solutions in which one of the standard filters had been autoclaved and allowed to stand for twenty-four hours before injection. Several times filters were placed in 1 liter flasks of 5 per cent dextrose and sodium chloride solution, then autoclaved, after which the dextrose and sodium chloride solution was given therapeutically to patients. In none of these tests was there the slightest reaction. To date, over 11,000 transfusions have been given with this filter at Harper Hospital under our supervision, and for nearly two years this filter has been standard equipment in four other Detroit hospitals. We believe it has proved altogether efficient and free from any technical difficulties. Being entirely pyrogen free, disposable and inexpensive, it has been by far the best solution to blood filtration which we have had.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

MERCOCRESOLS. —**Mercresin-Upjohn.** —A mixture consisting of equal parts by weight of secondary amyltricresol, $CH_3(OH)C_6H_3CH(CH_3)C_3H_7$, and *ortho*-hydroxyphenylmercuric chloride, o-HOC_6H_4HgCl. Mercocresols is used in the form of a tincture containing secondary amyltricresol 0.1 per cent and orthohydroxyphenylmercuric chloride 0.1 per cent dissolved in a solution containing 10 per cent acetone, 50 per cent alcohol, and water.

Actions and Uses.—Mercocresols, the combination of cresol derivatives and an organic mercury compound as previously defined possesses germicidal, fungicidal and bacteriostatic properties peculiar to its two component parts. The actions of its two constituents supplement each other, so that the mixture is approximately twice as germicidal for Staphylococcus aureus as the component cresol derivatives alone and seven to ten times as germicidal as the mercury compound alone. The estimated total effect should not be construed to be of that same order for all pathogenic bacteria and should be understood to represent a summation of activity rather than synergistic action of the two components. Its use as a germicide is subject to some of the same shortcomings as ordinary tricresols and organic mercurial antiseptics, particularly with respect to its inability to destroy bacterial spores.

Mercocresols is useful in the form of the tincture for external application as an antiseptic for minor superficial wounds or infections and as a prophylactic disinfectant for surgical preparation of the intact skin. Subject to dilutions variously indicated in the paragraph on dosage it is also useful for topical application to mucous membranes and for irrigation of certain body cavities and deep infected wounds.

The toxicity of mercocresols is principally that of the organic mercurial component. Mercocresols is compatible with both acids and alkalies and does not precipitate with the chlorides of the body fluids.

Dosage.—Mercocresols is applied topically in the form of the undiluted tincture (containing secondary amyltricresol 1:1,000 and orthohydroxyphenylmercuric chloride 1:1,000) to all superficial wounds and for surgical preparation of the intact skin. It may be similarly applied to the ear, nose and throat, but dilutions of from 1:5 to 1:20 should be used for irrigation or wet packs applied to these surfaces. In general, from 1:2 to 1:20 dilutions are used for topical application, irrigation or tamponage of inflamed mucous membranes, depending on the site and method employed. For irrigation of deep infected wounds or abscesses dilutions of from 1:5 to 1:10 are recommended; for irrigation, instillations or lavage of the bladder and urethra from 1:10 to 1:20 dilutions should be used. Dilutions of from 1:10 to 1:20 are also employed for instillation in the eye.

Tests and Standards.—

Secondary amyltricresol ($C_{21}H_{30}O$.—F. W. 178.26) is a mixture of isomeric secondary-amyl cresols obtained by the reaction of cresol and sec-amyl alcohol. It appears as a yellowish liquid, which darkens on exposure to light and air and possesses a phenol-like odor. It is miscible with the common organic solvents (acetone, alcohol, benzene, chloroform and ether); soluble in solutions of fixed alkalis forming a cloudy solution; slightly soluble in water, and soluble in an aqueous solution of 10 per cent acetone and 50 per cent alcohol, from which it does not precipitate on addition of water. A saturated aqueous solution is neutral or slightly acid to litmus. It gives no color reaction with ferric chloride T.S. At a pressure of 5 mm. of mercury not less than 95 per cent distils between 115 and 130 C. The refractive index is 1.5140 to 1.5190 at 25 C. The specific gravity is 0.95 to 0.98 at 25 C.

Orthohydroxyphenylmercuric chloride (C_6H_5OHgCl.—M. W. 329.26) is a white or slightly buff colored, crystalline powder; soluble in alcohol, ether, acetone, mineral acids and in solutions of fixed alkalis; very slightly soluble in water, and soluble in an aqueous solution of 10 per cent acetone and 50 per cent alcohol. It melts at 147 to 151 C. The saturated aqueous solution is slightly acid to litmus. A 0.1 per cent solution in diluted nitric acid yields the following qualitative reactions: the addition of ammonium sulfide T.S. gives no precipitate within five minutes, but on warming the solution over a steam bath a black precipitate is formed; on warming with silver nitrate T.S. it yields a white precipitate soluble in excess strong ammonia solution; when treated with an excess of sodium hydroxide T.S. it yields no yellow precipitate (mercuric ion) and the color does not darken (mercurous ion).

Orthohydroxyphenylmercuric chloride gives no color reaction with ferric chloride T.S. It yields not more than 0.1 per cent of residue on ignition. There is no apparent loss of weight on drying in vacuum over phosphorus pentoxide for twenty-four hours. The alcohol-insoluble residue does not exceed 2 per cent of the original sample.

Transfer 300 mg. of orthohydroxyphenylmercuric chloride, accurately weighed, to a 250 cc. beaker containing 5 cc. of hydrochloric acid and 150 cc. of water; heat this on a steam bath until solution is complete. Saturate the warm solution with hydrogen sulfide and allow it to stand until the precipitated mercuric sulfide has settled. Filter on a Gooch crucible and wash with water, alcohol, ether, carbon disulfide and ether in the order listed. Dry in an oven at 100 to 110 C. for one-half hour and finally cool in a desiccator; the weight of mercuric sulfide multiplied by 0.8622 is equivalent to a mercury content of not less than 60.5 per cent or more than 61.6 per cent.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Tincture Mercresin (Tinted): 60 cc. (Pistol Grip), 118 cc., 473 cc. and 3.785 liter bottles. A tinted solution of mercocresols 0.2 per cent in a mixture of acetone 10 per cent, alcohol 50 per cent and water.

Tincture Mercresin (Stainless): 118 cc., 473 cc. and 3.785 liter bottles. An untinted solution of mercocresols 0.2 per cent in a mixture of acetone 10 per cent, alcohol 50 per cent and water.

AMINOPHYLLINE (See New and Nonofficial Remedies, 1947, p. 305).

The following dosage forms have been accepted:

GOLD LEAF PHARMACAL CO., NEW ROCHELLE, N. Y.

Solution Aminophylline: 0.5 Gm. in 2 cc. and 20 cc. ampuls and 0.25 Gm. in 10 cc. ampuls.

SMITH-DORSEY CO., LINCOLN, NEB.

Suppositories Aminophylline: 0.5 Gm.

DIPHENYLHYDANTOIN SODIUM (See New and Nonofficial Remedies, 1947, p. 400).

The following dosage form has been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Diphenylhydantoin Sodium (Powder): 28 Gm., 113 Gm. and 453 Gm. bottles.

DIETHYLSTILBESTROL DIPROPIONATE (See New and Nonofficial Remedies 1947, p. 351).

The following dosage forms have been accepted:

THE BLUE LINE CHEMICAL COMPANY, ST. LOUIS.

Solution Diethylstilbestrol Dipropionate in Oil: 1.0 mg. per cc. in peanut oil, 1 cc. ampuls and 10 cc. vials.

Tablets Diethylstilbestrol Dipropionate: 0.1 mg., 1.0 mg. and 5.0 mg.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 26, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

NUTRITIONAL INFERIORITY OF VEGETABLE PROTEINS

Adopting a technic previously used by them for a study of the immunologic depression due to thiamine, riboflavin and vitamin A deficiencies[1]. Guggenheim and Beuchler[2] of the Department of Bacteriology, Hebrew University, Jerusalem, placed groups of young rats on well balanced diets containing varying amounts of different animal or vegetable proteins. After keeping the rats on these diets for four weeks, tests for the bactericidal and phagocytic properties of their peritoneal fluids were made, with parallel determinations of their change in body weight. In a typical experiment, four diets containing 18, 9, 6 and 3 per cent casein, respectively, were used. At the end of four weeks each rat was given intra-abdominal injection of 0.5 cc. of a twenty-four hour broth culture of Salmonella typhi murium. Two hours later peritoneal fluid was withdrawn and the number of leukocytes, phagocytes and extracellular and intracellular bacteria per microscopic field was determined. The number of residual bacteria in the peritoneal fluid increased as the casein percentage in the diet decreased. Thus, in rats fed 18 per cent casein, only 17 extracellular and 13 intracellular bacteria were found, a total of 30 bacteria per field. This increased to a total of 159 per field in the rats fed 9 per cent casein and to 236 per field with rats given as little as 6 per cent. With those fed but 3 per cent casein the count was 318 per field.

From these data the investigators concluded that the bactericidal power of the peritoneal fluid is reduced by even a moderate degree of casein deficiency. In severe states of deficiency a significant reduction in phagocytosis was also found. The anti-infectious titer of the peritoneal fluid is roughly parallel with increase in growth. Maximum growth and maximem titer were both recorded with rats fed 18 per cent casein; decreased growth and titer with those fed 9 and 6 per cent; a slight loss of weight and minimum titer with rats fed but 3 per cent casein.

In a second test groups of recently weaned rats were placed on diets in which 9 per cent of five other proteins (eggs, meat, soybean, peanut and maize) were substituted for casein. The results showed that both the growth-promoting power and anti-infectious effect of either 9 per cent egg or meat protein is approximately equal to that of 18 per cent casein. Both egg and meat proteins, therefore, have apparently twice the anti-infectious power of casein. With 9 per cent soybean protein the effects were approximately the same as those with 9 per cent casein. Peanut protein was slightly inferior, giving results equivalent to those of but 6 per cent casein. Maize protein was even poorer, 9 per cent maize protein giving results as low as that of but 3 per cent casein.

These vegetable proteins did not affect both anti-infectious titers equally. Thus the nutritional deficiency caused by a diet containing but 9 per cent peanut protein reduced the phagocytic apparatus more severely than it did the humoral antibody. In contrast rats kept on either egg or meat protein have a low phagocytic index, compensated for by a heightened humoral bactericidal titer.

No theory is as yet suggested to account for the immunologic inferiority of vegetable proteins.

1. Guggenheim, K., and Buechler, E.: J. Immunol. 54: 349, 1946.
2. Guggenheim, K., and Buechler, E.: J. Immunol. 58: 133, 1948.

INTERNATIONAL MENTAL HEALTH

The World Congress on "Mental Health and World Citizenship" scheduled for August 1948 in London will discuss (1) problems of world citizenship and good group relationship; (2) the individual and society; (3) family problems and psychologic disturbances; (4) planning for mental health organization, training propaganda, and (5) mental health in industry and industrial relations. Committees and discussion groups have been established composed of psychologists, psychiatrists, sociologists, educators, anthropologists and members of other technical groups in the human sciences. The object of the Congress is to find areas

on which scientists from all over the world can agree in defining some of the basic principles of mental and social health. Educational work directed along lines of agreement should then be a reasonable outcome.

Symptoms and signs of lack of mental health in the United States as compiled by Menninger and summarized in THE JOURNAL[1] can be multiplied by the total number of nations. These symptoms of personal insecurity, prejudice, hostility, irrational and irresponsible behavior must reflect themselves to an extent in international relations as these are conducted by persons who bring everything they are into everything they do. The subjective background of personal qualities which now determines political leadership needs to be subjected to critical impartial psychologic study.

The problem of mental health, whether personal, family, community, national or international, appears to revolve about security and responsibility. Repeatedly, however, examples are cited wherein too much security from above has led to irresponsibility in the secured. Security on a personal or national level cannot protect the individual from the mental distresses of international insecurity as expressed by war or threat of war. A moral rebirth in personal responsibility is necessary particularly among those charged with the conduct of international relations.

The increasing numbers of mentally and emotionally disturbed patients in clinics and hospitals are in part a reflection of the present low standards of world mental health. The scientific method itself has in a sense contributed to present conditions of mental health by its relentless exposure of the objective half of truth and only recently recognition of its subjective counterpart.

Evidence of mass insecurity and mental disturbance among hundreds of thousands of our own citizens as a result of mental stresses of the recent war indicates the probable mental hazards of atomic and biologic warfare. Previous to the war psychiatrists attempted to treat persons for abnormal reactions to normal situations. During the war essentially normal reactions to highly abnormal situations were met. William Menninger[2] emphasizes the continuation of these stresses today: "The condition of the world now places many people in a continuously abnormal situation to which they are reacting normally even though by all previous standards their behaviour is pathological. In such a turbulent world one might legitimaaely ask, What is a normal reaction?'

Fortunately the present threat to mental health appears concurrently with the development of the sciences of psychiatry, psychology and sociology, to the point where preventive advice of value is available and applicable in mass situations.

1. Situation in Psychiatry, Miscellany, J.A.M.A. 137:212-213 (May 3) 1948.
2. Menninger W. C.: Psychiatry; Its Evolution and Present Status, Ithaca, N.Y., Cornell University Press, 1948.

Current Comment

CANCER IN DIABETIC PERSONS

Review of the literature having indicated an apparent association between cancer and diabetes mellitus, Jacobson[1] made a statistical study to determine this point. Recent reports by Marble,[2] Ellinger and Landsman[3] were in definite agreement that clinically physicians are concerned with diabetic patients in whom cancer later develops rather than a group of patients with malignant disease in whom diabetes develops. As relative duration of diabetes is much longer, this appears to be a reasonable conclusion. The subject was attacked in two phases—mortality data from the "universe of dead persons" and morbidity data from the "universe of living persons." Mortality data for analysis were relatively easy to obtain. Of all deaths in the United States in 1940, 11.17 per cent were attributed to cancer. This factor is changed in the "universe of living persons," in that cancer is reported to have caused the deaths of 0.12 per cent of the population of the United States in 1940. From a special tabulation of associated causes of death in the United States in 1940 it was noted that cancer is reported in 11.6 per cent of nondiabetic persons and only 4 per cent of those with diabetes. Cancer of the digestive organs and the peritoneum, including the pancreas, is reported twice as frequently for the nondiabetic group. This does not indicate dissociation but is probably due to the influence of incomplete reporting of associated diagnoses on death certificates, although such effect obviously cannot be accurately demonstrated. Special mortality data for New York city report cancer less frequently among diabetic persons than among nondiabetic persons. This again does not show true dissociation. A classic former example of such apparent dissociation was obtained from necropsy data on association between diagnoses of

1. Jacobson, H.: A Statistical Study of Cancer Among Diabetics, Milbank Memorial Fund Quarterly, 26: 90-118 (Jan.) 1948
2. Marble, A.: Diabetes and Cancer, New England J. Med. 211: 339-349, 1934.
3. Ellinger, F., and Landsman, H.: Frequency and Course of Cancer in Diabetics, New York State J. Med. 44: 259-265, 1944.

active tuberculosis and cancer. On a basis of apparent negative relationship in these diseases the conclusion was reached that tuberculosis was antagonistic to the development of cancer. Subsequently frequency of active tuberculosis in persons who died from heart disease was found to be as low as in those who died from cancer. Therefore the statistician concluded that in order to show dissociation it is not sufficient to show that a condition is less frequently associated with another at the time of death, but rather that it is less frequently associated with it than it is with other diseases and conditions. Applying this principle to the New York city data, four diagnostic groups were set up: (a) diabetes mellitus, (b) tuberculosis (all forms), (c) syphilis and (d) cardiovascular-renal diseases. Collected data in these groups revealed that cancer is associated with diabetes mellitus relatively to the same extent that it is with syphilis and with tuberculosis, but cancer is associated with cardiovascular-renal diseases to a significantly lesser extent. It was concluded therefore that cancer is positively associated with diabetes. Again calculating morbidity data among the "universe of living persons," survey data from eighty-three cities comprising 2,502,391 persons revealed that 2,912 men and 5,278 women were reported as diabetic among the urban white adults over 25 years of age. Among these, cancer was reported in 0.6 per cent of diabetic men and 0.7 per cent of diabetic women. This reveals that among diabetic persons cancer occurs more frequently than the expected rate among the general population. In order to control statistical biases which may result in diagnoses among diabetic persons because they possibly receive medical attention more frequently these figures were calculated against figures for cancer among nondiabetic persons with sinusitis as controls in the same survey group. Among this group of persons who would probably be subject to similar diagnostic bias there was no statistically significant increase in the incidence of cancer. Reported rates on the prevalence of cancer standardized for age on the basis of age distribution of all persons included in the survey showed that the incidence of cancer was twice as great in diabetic persons as in nondiabetic persons with sinusitis (2.09 times in men and 2.98 times in women). Statistical attempt was made to arrive at an explanation for excess prevalence of cancer among those with diabetes, but it was decided that for all practical purposes a conclusion from the evidence available was not tenable. Both mortality data from the "universe of dead persons" and morbidity data from the "universe of living persons" confirmed clinical evidence that the incidence of cancer is higher in diabetic persons than the expected incidence among people in the general population.

TUBERCULOSIS MORBIDITY AND MORTALITY FOR 1946

Mortality from tuberculosis in the United States continues to decline. The death rate in 1946 in metropolitan New York was 33 in the white population and 158 in the colored. The combined death rate for the recorded mortality for New York City for 1946 was 41.7 as compared with 45.4 the year previous, a decline of 8 per cent - one of the largest in years. The incidence rate during the 1942-1946 period varied all the way from 47 per hundred thousand in the Gravesend Health Center District of Brooklyn to a rate of 380, almost eight times as great, in central Harlem. Tuberculosis in New York city continues to kill twice as many men as women. In the United States in 1946 the deaths due to tuberculosis numbered 50,911 and were 2,005 fewer than in 1945, the death rate being below 40 for the first time, namely 36.4 as against 40.1 in 1945. In Canada the 5,797 deaths from tuberculosis in 1946 were 251 more than in 1945 and the death rate increased from 45.8 to 47.3. In England and Wales in 1946 the deaths due to tuberculosis were 22,838 and the death rate 53.3; in Scotland the death rate was 78.8, while in 1939 it was 70.4. In Northern Ireland the tuberculosis death rate in 1946 was 83.8, while in 1945 it was 80.3. In the Irish Free State the death rate of 114.4 in 1946, though lower than that of 123.8 in 1945, was still above the 1939 rate of 112.6. The clinics that specialize in activities against tuberculosis in New York City play a fundamental part in the delay fight. In 1946 there were available forty such services well distributed on a neighborhood basis. Twenty-one were clinics of the Department of Health of the City of New York; eleven, of the Department of Hospitals, and the remaining eight, conducted by various private institutions. In addition there is the highly organized and well equipped Central Chest Clinic of the Department of Health for diagnostic work among suspects discovered in mass roentgenologic surveys and the required examination of new municipal employees. Roentgen service at the tuberculosis clinics is rendered on a tremendous scale: in 1946 a total of 132,719 roentgen examinations were made as compared with 121,028 in 1945, an increase of 11,691. The Department of Health of the City of New York and the Queensboro Tuberculosis and Health Association continued to maintain in 1946 twenty-three consultation services for tuberculous patients of private physicians. The Department of Health is responsible for the major part of tuberculosis home-visiting work. With the population of New York City constantly on the increase and congestion of homes aggravated by shortage of housing, hospitalization for the tuberculous and segregation of those with open cases of the disease remain undoubtedly the most important factors in controlling the spread of tuberculosis.

ORGANIZATION SECTION

MEETING OF THE COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

Chicago, April 5-6, 1948

Abstracts of Papers read in Panel Discussion on Medical, Health and Sanitary Problems of the Military Establishment in the Event of a National Emergency.

The Panel Discussion on "Medical, Health and Sanitary Problems of the Military Establishment in the Event of a National Emergency" was led by delegated representatives from the Department of Army, Department of Navy, Department of Air Force, the U.S. Public Health Service and the Office of Selective Service Records. The paper of Major General Malcolm C. Grow, the Air Surgeon, appears in full in this issue of THE JOURNAL.

COL. WILLIAM L. WILSON, M.C., U.S. Army: The solution of medical problems by government services in national emergencies is conditioned by many variable factors, all of which are actually governed by civilians. Any failures by government services must also be partially attributed to civilian failures. The selection of personnel to be trained, their education, their selection for offices, their philosophies, their qualifications and capacities are a product solely of civilians long before any medical personnel of the government have ever taken office. Some aspects of government services, including medical, are uncontrollable, and it is the uncontrollable factors which are magnified and capitalized by an enemy. These factors demand strictly administered mobilization of maximum means in the presence of any enemy, even to the point of wastage. The limits of potential wastage can never be evaluated with certainty until each emergency has passed. The wastage will already have established to a positive degree the reserve which assured the success. While the degree of wastage will not be controllable by government services, it will reflect the exact missions prescribed to them by civilian authority. It is to the credit of the professions and government services that public opinion continues favorable to the medical services of the government.

The Army is in better position today than ever before to discharge its medical functions in coordination with other government services and with civilians. The National Security Act of 1947 established the framework for this and continued it under civilian control. Both physicians and dentists are in short supply within the services and in certain civilian areas. Medical requirements can be computed quantitatively and qualitatively. Provided security were not violated, it could be stated quantitatively and qualitatively what personnel will be required under any set of basic assumptions. The civilian reservoir must be known. Hence, additional Army personnel required at any time might be provided most simply and efficiently if: (*a*) some equitable allocation to all purposes of all personnel had been predetermined by an authorized and qualified agency, to be made available on call; (*b*) all personnel had been registered and classified (we would recommend the Army Classification System, the job specifications of which have been successfully applied for several years); (*c*) all personnel were called solely in priorities and for purposes suitable to their classifications; (*d*) medical education were continued and not reduced, with all related sciences likewise assured, and, (*e*) the military medical professional training program were maintained at maximum levels.

The first four are beyond the province of the Army for solution, while their successful solution determines the capacity of the Army to control the fifth. You could aid immeasurably by assuring the establishment of physical fitness standards for every category and occupation of the population. The professional qualifications and the numbers required can be determined only by the types of medical services and the administrative situations under which the services will be rendered. In a major war the wastage factor will be large unless standards are lowered. If standards must be lowered it must be with knowledge and consent of the civilian professions that no other course is open.

The system established for selecting or inducting personnel at this time is one of voluntary entry into service, no other being within the province of the Army for limited draft, universal military training or a national emergency.

The available hospital plant facilities are adequate to meet present needs of the Army plus those of the currently planned national service training; for maximum mobilization additional facilities will be required. World War II revealed the need for changes in existing units of all types from time to time. Changes are desired in Tables of Organization and equipment. It is likely that future qualified advice from outside of the Army could be best obtained by placing persons on temporary active duty with the Army long enough to permit study of the tables. Among the current objectives are: elimination of unnecessary tables; increase in flexibility of units and ease of deployment to meet changing requirements with minimum wastage; provision of adequate grades and rotation to the maximum degree possible, and better phasing of mobilization of individuals and units against actual medical operation requirements.

Close cooperation prevails between the Army and Navy as to medical supplies, which are pooled, excesses of one service being made available for the needs of the other service. Army and Navy and Air Force hospitals located throughout the United States are all equipped at present, and some have reserve equipment on hand for expansion.

One of our greatest problems is administration or management. There is no more complicated or diversified specialty than military medical administration. Success can be achieved only with long training, inexhaustible patience and thorough understanding of command and staff responsibilities. Medical functions cut across every command, every staff, combat, technical or supportive service and in addition every conceivable civilian administrative function, from the first entry to the last departure from service of every individual.

We look to the Council on National Emergency Medical Service to contribute decided benefits to the Army by accurately visualizing the effects of individual and collective acts of the members of the medical professions, then assuring: *(a)* that the professions are correctly informed and rapidly; *(b)* that the attitudes of the professions are, in fact, of such nature as to produce government services of size, composition and quality approved by the profession and the public; *(c)* that the teaching

of future or new members of the professions and advice given to them individually and collectively reflect a true picture of the importance, responsibilities and publicly controlled capacities of government services to accomplish their prescribed missions and objectives; *(d)* that advice and support directly to the chief medical officers of the services is of continuing and positive nature leading to feasible and realizable improvements of the services; *(e)* that adequate indexes and factors applicable to all medical and related functions essential for the civil population are rapidly developed in such form as to permit comparison with military logistic data, and that suggestions toward improvements in the latter be offered with a view to obtaining universally comparable data, and *(f)* that all of the foregoing be based on profound observance of need for balancing all medical resources with all medical needs in a national emergency while preserving maximum personal liberty and individual freedom of action compatible with the good of the whole population established within an ordered pattern.

REAR ADMIRAL M. D. WILLCUTTS (MC), U.S. Navy: The Department of the Army informs me that its authority to order reserves to active duty has expired. They can request reserve officers and enlisted men to volunteer, but cannot force them to serve. An act of Congress states that they cannot be called to active duty for more than fifteen days a year against their will except in time of national emergency, declared by Congress itself. Nor can the Navy call their reserves to active duty without an order from the President or Congress. The act of Congress authorizing the Naval Reserve states that these officers and men can be ordered to active duty in time of war or when the President considers there is a national emergency. The majority of naval reserve officers went into inactive status when they left the service, retaining their commissions, very few resigning. During a national emergency the President has the power to call the National Guard into federal service; this does not need the approval of Congress. The National Guard cannot be sent outside the United States unless the President obtains specific approval from Congress or unless individuals in the National Guard volunteer for overseas service.

Should the President proclaim a national emergency, the consensus is that the Army, Navy and Air Force could hold their active enlisted men beyond the expiration of their present tours of duty. Otherwise, unless they voluntarily signed up for further service, they would have to be released at the end of their enlistments.

The three services have a total authorized strength of 1,732,000 officers and men. The Army has an authorized strength of 669,000 officers and enlisted personnel; the Navy is authorized 500,000 men plus 52,000 officers; the Marine Corps, 100,000 men and 10,000 officers, and the Air Force, 337,000 enlisted men and 64,000 officers. The President has stated that this authorized strength must be reestablished and has recommended reenactment of the Selective Service Act. The Secretary of Defense and the military chiefs urge that the authorized strength for the Armed Forces be increased to 1,734,000 with provision for an additional 181,000 should legislation for universal military training be be enacted, for a grand total of 1,915,000.

The Navy Medical Corps is seriously involved. The authorized strength of medical officers, based on full Navy strength, is 4,315. Budgetary limitations have reduced the active strength of the Navy to a level requiring 3,130 medical officers in order to fill essential billets. There are, operative census, 2,856. Of this number, 1,436 are reserve medical officers, 500 of them V-12 men whose two year obligated service is expiring and who will thus be released to inactive reserve status within the next sixty days. A remaining larger group is due to be released in July 1949.

The Bureau of Medicine and Surgery would like considered opinion on whether these excellent young medical officers with two years' naval training should now be released. In view of their country's need, should their release be deferred at least until new medical classes may be ordered up and trained or the older men be given an opportunity to redon their uniforms? Just as hostilities ceased in Japan atomic energy was introduced, harnessed as a high explosive weapon capable of mass destruction. At Hiroshima and Nagasaki I was deeply impressed with the medical personnel losses. Of three hundred resident physicians in Hiroshima, two hundred and sixty were killed or severely injured. Seventy-five per cent of the total nurses, orderlies and trained first-aid workers were immediately wiped out. Not one hospital was left in condition to shelter patients; practically all medical equipment was destroyed. The bombs at Hiroshima and Nagasaki are now known as baby bombs. Scientists developing the atomic bombs claim that bombs one thousand times more powerful are now possible. These bombs may cause death 500 miles beyond the actual target area. It has been estimated that a single bomb per city, dropped over twenty of our great cities, could cause the death of 20,000,000 persons.

Modern war will mean an immediate all-out national effort. Physical standards for recruitment may need to be modified, for every ounce of manpower will be necessary. Those with chronic disorders, even of the psychiatric type, must fight or work. With the advent of specialized weapons a constant prewar status must be maintained, a defense against a treacherous enemy's first blow.

The National Security Act of 1947 declared that it is the "intent of Congress to provide a comprehensive program for the future security of the United States, to provide for the establishment of integrated policies and procedures for the departments, agencies and functions of the government relating to the national security." Two high level agencies were provided for the purpose of "coordination for national security," namely, the National Security Council and the National Security Resources Board.

The following recommendations have been made: *(a)* that a National Emergency Medical Council be established as a continuing function of the national government; *(b)* that such a council be an agency of the National Security Resources Board, to which the council would be directly responsible; *(c)* that the council be comprised of representatives from the several recognized national medical and allied organizations and associations; *(d)* that the members of the council function on a part time basis; *(e)* that the council be charged, under the National Security Resources Board, with the consideration of policies and the preparation and maintenance of plans for use in the event of acute national emergency for: (1) mobilization and most effective utilization of the total medical and allied resources of the Nation; (2) the allocation of medical and related personnel to best meet the civil and military needs; (3) coordination of provisions for mutual medical aid between communities and municipalities, and (4) coordination of civilian and military medical services on a national scale under the various wartime situations which may be

encountered; *(f)* that the foregoing, or similar action designed toward the same end, be initiated without delay to achieve the primary objective of assuring the nation's readiness to provide, with the limited total medical resources which will be available, the best possible over-all medical coverage under all contingencies of an actual wartime national emergency.

The medical personnel of the Armed Forces are being trained in the medical aspects of new and powerful weapons. Civil medicine must do likewise. Medical schools and postgraduate medical courses should stress these subjects, so that every American physician may be alerted to these new war hazards.

Washington Letter

(From a Special Correspondent)

June 25, 1948.

President Signs Bill Authorizing Federal Heart Research

President Truman signed the bill authorizing the U. S. Public Health Service to support research on diseases of the heart. Establishment within the health service of a National Heart Institute, to aid cardiac disease research through grants, fellowships and similar means, is provided. As the bill carried no funds, Federal Security Administrator Oscar R. Ewing and Dr. Leonard Scheele, Surgeon General of the health service, asked a Senate appropriations subcommittee to include $6,730,000 in the last big deficiency bill. Congress had already appropriated $2,644,088 for studies of cardiac disease in the next fiscal year, but the extra funds were sought to implement the new law setting up the National Heart Institute.

Condemns Practice of Attaching Riders To Appropriations Bills

The electorate will decide next November when the vote is taken for the presidency on who wins the end-of-session row between President Truman and the Republican-controlled Congress; yet the Chief Executive aroused considerable favorable comment in the Capitol for criticizing the practice of attaching legislative riders to appropriations bills. Observers say that the President acted wisely in returning the billion dollar Social Security bill, which provides funds for this federal agency, because of the riders. Congress, in turn, was accused of "politics" in overriding his veto of this legislative item.

Admiral Solberg Nominated Navy Research Chief

President Truman nominated Rear Admiral Thorvald A. Solberg, aged 52, to be the U.S. Navy's new chief of research. He is an expert on atomic energy. Named to a three year term, he succeeds Admiral Paul F. Lee, who is retiring soon. Admiral Solberg directed preparation on the ships used as targets for atomic bomb tests at Bikini Atoll in the Pacific. He later supervised inspections to determine effects of the bombs. He has, since 1936, served as Navy member of the Military Liaison Committee of the U.S. Atomic Energy Commission. He is a native of Madison, Wis., and his home is in Sand Point, Idaho.

Committee Investigates Civil Service "Physical Disability" Firings

The House Civil Service Committee is investigating charges against various federal departments and agencies of alleged truthless firings of employees on false charges of "physical disability." Committee staff members charge that government workers, apparently in good health, have been summarily dismissed on disability grounds. Committee Chairman Rees is directing the probe.

Dr. Detlev W. Bronk Elected to Royal Society

Washington friends have tendered congratulations to Dr. Detlev W. Bronk on his election to the Royal Society of London. He is foreign secretary of the National Academy of Sciences, chairman of the National Research Council and director of the Johnson Research Foundation, University of Pennsylvania.

Medical Legislation

Louisiana

Bills Introduced.—H. 19 proposes the creation of a state medical laboratory to make such medical tests, examinations, experiments or other work as may be assigned to it by the director of the Louisiana State Department of Health. H 58 proposes the creation of a state hospital board to contract or enter into agreements with privately owned hospitals and other institutions for the care and treatment of indigent or destitute sick persons. At least two members of said board must be capable and reputable physicians engaged in the general practice of medicine in the state. According to the proposal the care to be given to indigents should include necessary outpatient care and treatment after hospitalization as well as proper dental, medical, surgical and other treatment. H. 61 proposes the organization and establishment of a state tuberculosis commission to provide for the suppression of tuberculosis within the state and means for the isolation, care, cure and treatment of persons suffering therefrom. H. 271 proposes the creation of a state board of chiropractic examiners and defines chiropractic as the art and science of locating and adjusting the articulations of the spinal column and adjacent tissue. H. 285 proposes to authorize associations created to furnish hospital care to provide also for the furnishing of surgical and medical benefits. H. 287 proposes an appropriation to the state hospital board for conducting a hospital survey and construction program and a mental health program in the state. H. 395 proposes that all persons making application for a license to be married must first be examined as to the existence or nonexistence of a venereal disease, the examination to include a recognized blood test for syphilis, such examination being made by a physician duly licensed to practice in the state. The proposal would further provide that the required blood test for syphilis may be made in any laboratory, public or private, which is generally recognized by the medical profession of the state. H. 315 proposes an appropriation of $300,000 to the Louisiana State Board of Health to be used to match federal and local funds to provide for constructing and equipping public health centers, including administrative offices, laboratories and clinics. H. 430 proposes, among other things, that corporations which issue promises to members to provide for the attendance of a physician and surgeon and to furnish hospitalization, drugs, etc. in the event of sickness or physical disability shall be deemed to be engaged in the business of service insurance on the stipulated premium, cooperative or assessment plan. H. 457 proposes to authorize domestic industrial insurers, domestic service insurers and domestic life, health and accident insurers on the cooperative or assessment plan to issue policies providing for ambulance benefits. S. 13 proposes the creation of a Louisiana Hospital Commission for the survey of the need for additional hospital facilities and the development and administration of a hospital planning and construction program. The proposal would require the appointment of a state advisory council and would designate the Commission as the sole agency to institute and conduct a mental health program in the state in compliance with the provisions of the National Mental Health Act and to accept and expend federal funds in accordance with the requirements of any federal hospital survey and construction act. S. 155 proposes to prohibit the sale of potassium bromate and all other heavy metal bromates except on a prescription of a duly licensed medical doctor. S. 178 proposes to require manufacturers of preparations used for hair waving purposes to print certain warning material on the label of each container.

ARMY

KOREAN INTERNS IN FOUR ARMY HOSPITALS

Following examinations held in May, sixteen Korean doctors, graduates of recognized hospitals, will soon begin serving internships at four Army hospitals maintained by the American occupation forces in Korea, Only doctors with a knowledge of English were eligible for these competitive examinations. Of the thirty-eight applicants, four are to be each assigned to the 34th General Hospital, Seoul; 382nd Station Hospital, Camp Ascom; 377th Station Hospital, Seoul, and the 71st Station Hospital at Pusan, where they will be given a one year rotating service. Among those cooperating in furthering this new step was Dr. John D. Bigger, a graduate of the University of Kansas and a missionary who has practiced Medicine in korea for thirty-seven years. Dr. Bigger was a Japanese prisoner for six months at the start of the war, then went to Manila to engage in relief work, coming back to Korea in 1945 to become a civilian employee of the Department of the Army.

Koreans taking the examinations for interns in U. S. Army Hospitals at Seoul. Standing from left to right are Dr. C. C. Choi, deputy director, Department of Public Health and Welfare and Dr. John D. Begger.

PATHOLOGIST PROMOTED TO BRIGADIER GENERAL

The Senate on April 26 confirmed the appointment of Col. Raymond O. Dart, director, Army Institute of Pathology, as a permanent brigadier general in the Medical Corps of the Army. General Dart, a native of Kansas, is a graduate of the University of Kansas and of Rush Medical College; he interned at the Presbyterian Hospital, Chicago, and since entering the Army in 1917 has spent most of his service in the field of pathology. He served in Europe in World War I and for a time was commandant of the 105th General Hospital in World War II, surgeon of the Brisbane, Australia, base and New Guinea advanced section, and deputy chief surgeon in the Pacific Area. He has been awarded the Legion of Merit and the Bronze Star.

GRADUATE COURSE IN PHOTOMICROGRAPHY

The Army Institute of Pathology announces that preliminary arrangements have been made by the Army Medical Illustration Service and the United States Department of Agriculture to start a postgraduate course in photomicrography at the Institute of Pathology Photographic Laboratory, 7th Street and Independence Ave., Washington, D. C. The opening date probably will be the first week in September.

PERSONALS

Col. J E. Ash, Scientific Director, American Registry of Pathology, with offices at the Army Institute of Pathology, conducted a three day postgraduate seminar on "Tumors of the Genital Urinary Tract" at the University of Texas, Galveston, in May.

Dr. Hans F. Smetana of the Army Institute of Pathology discussed granulomatous reactions in regional enteritis before the Washington, D. C., Society of Pathologists, May 25.

Col. William A. Smith, recently post surgeon at Fort Jackson, South Carolina, who retired from active service May 31, has accepted a position with the North Carolina board of health's tuberculosis division at Raleigh.

NAVY

VIRUS PRODUCED IN ABSENCE OF HOST CELLS FOR FIRST TIME

The Surgeon General has announced the first successful experiments on the production of a virus in the absence of the host cells (bacteria). The experimental work was described by Dr. Albert P. krueger, scientific director, Office of Naval Research, Task V on Airborne Infections at the University of California. Dr. krueger, a reserve captain in the Navy Medical Department, was awarded the Legion of Merit for outstanding work during the war as commanding officer of the Navy's Research Unit No. 1 at Berkeley, Calif. Scientists have been trying for years to make a virus reproduce apart from living cells but, the announcement states, it was never done until Dr. Krueger's recent work. This discovery opens up a new aspect of virus research. The particular virus (phage) in question, which was first discovered in 1915, is a highly complex nucleoprotein found in soil, polluted rivers and within the human body. Dr. krueger began his experiments twenty years ago and attempts to extract the cellular substance, which rapidly reacts with phage to form more phage, always ended in failure until early in 1948. This research project, an account of which will appear in the July *United States Naval Medical Bulletin*, was supported by the Office of Navy Research and the Bureau of Medicine and Surgery.

Safety in Operating Rooms

Lieut. A. W. Kenny, safety officer, returned May 15 from a three week safety survey of naval hospitals in Corpus Christi and Houston, Texas, and Pensacola, Key West and Jacksonville, Fla. He was appointed to serve on a committee to study the hazards from explosions of anesthetics in operating rooms. The committee comprised representatives from the National Bureau of Standards, the Public Health Service, the Veterans Administration, Navy Department, Bureau of Mines and the Public Buildings Administration.

NEW MEDICAL OFFICERS

The following reserve officers who have been on active duty have accepted appointments in the regular Navy Medical Corps: Lieuts. (jg) John B. Miller of Fairmont, Minn; Lewis G. Richards Jr., of Roanoke, Va.; Robert E. Rowand of Swarthmore, Pa.; Robert W. Sharp Jr., of Grenada, Miss., and Arthur J. Wilets of Burlington, Wis.

The following recent graduates of medical schools have accepted appointments as lieutenants (jg), MC, in the Regular Navy and will serve their internships as follows:

John J. Dempsey, Upper Darby, Pa., to the Naval Hospital, Bethesda, Md.

Robert F. Dykhuizen, Indianapolis, to the Naval Hospital, Long Beach, Calif.

William A. Fisher, Lykens, Pa., to the Naval Hospital, Bethesda, Md.

Rudolph H. Hand, Greenville, S.C., to the Naval Hospital, Portsmouth, Va.

Clarence A. Harvey, Santa Ana, Calif., Naval Hospital, Oakland, Calif.

Samuel W. Johnson Jr., Norfolk, Va., Naval Hospital, Philadelphia.

James S. Ketcham, Rossville, Ind., Naval Hospital, San Diego, Calif.

Ernest W. Klatte, Indianapolis, Naval Hospital, Long Beach, Calif.

Bennie J. Massey, Palatka, Fla., Naval Hospital, Jacksonville, Fla.

Robert F. Neal, Elmwood, Tenn., Naval Hospital, Bethesda, Md.

Vincent P. Russo, Bronx, N.Y., Naval Hospital, St. Albans, L.I., N.Y.

Delmer J. Pascoe, Glendale, Calif., Naval Hospital, Long Beach, Calif.

Arthur C. Smid, Omaha, Neb., Naval Hospital, Great Lakes, Ill.

Henry A. Sparks, Los Angeles, Naval Hospital, Long Beach, Calif.

Robert E. Suer, Cincinnati, Naval Hospital, Long Beach, Calif.

Edward A. Thompson, Marshall, Va., Naval Hospital, Bethesda, Md.

Hobert W. Watson Jr., Burlingame, Calif., Naval Hospital, Chelsea, Mass.

PERSONALS

Rear Admiral Lamont Pugh has been elected a member of the Executive Committee of the National Board of Medical Examiners.

Capt. Charles G. McCormack and Comdr. Ben Hollander, San Francisco, both on the retired list, are being recalled to active duty and will be assigned respectively to the Bureau of Medicine and Surgery, Washington, D. C., and the Mare Island Naval Shipyard, Vallejo, Calif.

Comdr. Charles A. Castle, MCR, of Watertown, S.D., and Lieut. (jg) Lynn E. Anthony, MCR, of Macon, Ga., are returning to active reserve status for a period of one year and will be assigned respectively to the Naval Hospital, Great Lakes, Ill., and the Naval Hospital, Dublin, Ga.

Capt. Joseph L. Schwartz, recently in command of the Naval Hospital, Brooklyn, N. Y., has been transferred to the Bureau of Medicine and Surgery, Washington, D. C., as editor of the *Naval Medical Bulletin*.

Rear Admiral John P. Owen (MC), who retired from active duty May 1 at his own request after thirty-one years of active service, has accepted a position as medical advisor to the Superior Court of San Francisco and San Francisco County.

Ensign Yoshiko Tanigawa of Minneapolis is the first nurse of Japanese ancestry to be commissioned in the Nurse Corps of the U.S.Navy, having been sworn into service March 22. Ensign Tanigawa graduated from the Nurses Training School at St. Barnabas Hospital, Minneapolis.

Capt. G. N. Raines, head, Neuropsychiatric Department, Naval Hospital, Bethesda, Md., has been recommended for additional psychoanalytic training at the Washington School of Psychiatry. Capt. Edward P. Kunkel, executive officer, Naval Hospital, San Diego, Calif., has been nominated for duty as medical officer in command of the Naval Medical Center, Guam, Marianas Islands.

VETERANS ADMINISTRATION

DR. MORRISON APPOINTED CHIEF CONSULTANT IN SURGERY

Dr. Paul B. Magnuson, medical director of the Veterans Administration, announces the appointment of Dr. William H. Morrison, Boston, as chief consultant in surgery. Dr. Morrison, who is one of the founders of the American Board of Surgery, recently completed a nationwide tour of veterans' hospitals; he will devote a major portion of his time to the surgical consultant's work. He is a graduate of Harvard Medical School, served in France in both World Wars and for many years has been associate chief examiner in surgery for the National Board of Medical Examiners at Boston and a teacher of anatomy and surgery at Harvard, Tufts College Medical School and Boston University School of Medicine.

SYPHILIS RECORDS

The chief medical director of the Veterans Administration, Dr. Paul B. Magnuson, writes that the Veterans Administration has in its custody the syphilis records of Army personnel who were treated for this disease while in active service and in many cases can procure data from the syphilis records of other than Army personnel. Résumés of these records are available to physicians who are treating such veterans, providing the veteran himself authorizes release of the data. Requests for such a résumé, accompanied by authorization for its release dated and signed by the veteran, should be addressed to the Dermatology and Syphilology Section, Veterans Administration, Munitions Building, Washington 25, D.C. It is important that the veteran's serial number and his date of enlistment and discharge, rank and organization be included.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Cyclotron Begins Operation.—The cyclotron at the University of California, Los Angeles campus, began operation early in June. It has been moved from the Berkeley campus and reassembled with double its original capacity. The cyclotron will be used to produce radioactive isotopes for medical research and for experiments in nuclear chemistry.

Personal.—Dr. John C. Ruddock, Los Angeles, reported to the Bureau of Medicine and Surgery, U. S. Navy, Washington, D.C., for ten day's temporary duty during June with the Naval Reserve Policy Board. Dr. Ruddock, a Captain in the Naval Reserve, was Chief of Medicine at the Naval Hospital, San Diego, during the war.

COLORADO

Dr. Sudan Heads Division of General Practice.—The University of Colorado Medical Center, Denver, will inaugurate for the September term its division of general practice in the department of general medicine at the medical school. Dr. Archie C. Sudan, Denver, first winner of the American Medical Association general practitioner award, will head the new division on a voluntary basis, and will be assistant professor of general practice. The division of general practice will screen all admissions both to the Denver General and the Colorado General Hospital. New clinic patients will get a thorough uniform general examination by general practice personnel on admission.

CONNECTICUT

Cooperative Project on Lobotomy.—The Connecticut State Hospital at Middletown, the Fairfield State Hospital, Newtown, The Hartford Institute of Living and the Yale University School of Medicine, department of psychiatry, are making a study of 200 patients who have been subjected to prefrontal lobotomy as a means of treatment of mental illness. This program has been called the Connecticut Cooperative Project on Lobotomy. Dr. Frederick C. Redlich, assistant professor of psychiatry at Yale, stated in a recent broadcast that of the 200 patients, all of whom might have been considered hopeless cases, 8 per cent were free of symptoms a year after the operation; one fifth of the number were able to hold jobs and one half of them could be discharged from institutions. Only 10 per cent were unimproved or got worse. The pioneer experimental work in developing the operation, he said, was done at Yale by Dr. John F. Fulton, professor of physiology, and his associate, Carlyle F. Jacobsen, Ph.D. Later Dr. Egas Moniz of Lisbon, Portugal, developed technics for performing the operation on human beings. Since then several thousand Americans have undergone lobotomies in psychiatric centers in this country.

Most patients subjected to lobotomy at Yale have severe schizophrenia and have not reacted favorably to psychotherapy and shock treatment and are persons for whom there seems no hope by any other therapeutic procedure. We operate, Dr. Redlich said, also on patients with severe and chronic depression who do not react to other procedures and occasionally on patients with extreme compulsive-obsessive reactions. He did not credit the favorable results solely to the operation, as every patient on whom the operation has been done needs psychotherapy and the help of a social worker to adjust, and often the quality of these measures determine to a large degree how good the adjustment of the patient is going to be.

FLORIDA

Meeting of Blood Banks.—At the second annual meeting of the Florida Association of Blood Banks in Miami, May 7-8, papers were presented on the Rh and Hr factors by Drs. Alexander S. Wiener, Brooklyn, Philip Levine, Newark, N. J., Ernest Witebsky, Buffalo, and Louis K. Diamond, Boston. Florida's blood bank organization differs from some other state programs in that there is no central control, but there is uniformity of technic and reciprocity among the banks. Four central banks have been organized with others in the process of organization, as well as a number of sub-banks, which will operate under the supervision of the central banks. The next annual meeting will be in Tampa in February 1949.

IDAHO

State Meeting at Sun Valley.—The Idaho State Medical Association will hold its annual meeting July 6-8 in Sun Valley with headquarters at the Challenger Inn and under the presidency of Dr. Albert B. Pappenhagen, Orofino. The following members of the faculty of the University of Minnesota Medical School, Minneapolis, will present the scientific program: Dr. Owen H. Wangensteen, professor of surgery; Dr. Cecil J. Watson, professor of medicine; Dr. Leonard A. Lang, chief of obstetrics and gynecology, Minneapolis General Hospital; Dr. Donald W. Hastings, professor of psychiatry and neurology; Dr. Edward P. Burch, clinical assistant professor of ophthalmology. Round table discussion groups for luncheon on Tuesday, Wednesday and Thursday have been arranged with one of the guest speakers presiding at each table. The annual banquet will be held July 7 at eight p.m.

ILLINOIS

Health Association Elects Nurse as President.—At the annual conference of the Illinois Public Health Association in Chicago, April 15, Maude B. Carson, chief, division of public health nursing, Illinois State Department of Public Health, succeeded Dr. Edward A. Piszczek, director of the Cook County Health Department, as president. Mr. B. K. Richardson, senior administrative officer of the state department of public health, was named president-elect, and Harold M. Cavins, Ed.D., of the Eastern Illinois State Teachers College, Charleston, was reelected secretary treasurer.

Chicago

Personal.—Dr. Sol R. Rosenthal, assistant professor of bacteriology and public health, University of Illinois, Chicago, left June 12 to attend the First International Congress on BCG Vaccine in Paris June 18-23. He served as vice president of a section on human vaccination.

Visiting Professor.—Dr. Alexander T.M. Wilson, director of the Tavistock Institute of Human Relations, London, England, will be a member of the summer session faculty of Northwestern University beginning June 28 and will conduct his courses under joint sponsorship of the departments of psychology and sociology of the College of Liberal Arts and of the School of Speech. He will also give several public lectures, one on "Current Problems of Education in England" to be delivered July 15. Dr. Wilson received his medical degree at the University of Glasgow, Scotland, 1940. He is a fellow of the Royal Society of Medicine and is on the staff of the Middlesex Hospital in London.

MASSACHUSETTS

Hospital Quarantined for Diphtheria.—The State Mental Hospital, Foxboro, was quarantined May 30 after the outbreak of 5 cases of mild diphtheria among the 1,200 patients.

Society News.—At the annual meeting of the Massachusetts Trudeau Society in Boston in April, Dr. Donald S. King, Brookline, was elected president and Dr. Edward J. Welch, Boston, secretary treasurer..

Appoint Professor of Dermatology.—Harvard Medical School and Massachusetts General Hospital are beginning an intensive program of research on skin diseases. The program, financed part by the Rockefeller Foundation, will be based on cooperation between dermatologists and experts in general medicine. To develop this program. Dr. Chester N. Frazier, head of the department of dermatology at the University of Texas Medical Branch, Galveston, has been appointed professor of dermatology at Harvard and chief of the dermatologic service at the Massachusetts General Hospital. He will organize a new department of dermatology at the medical school and will lead the research and clinical program at the Massachusetts General Hospital. Dr. Frazier, a graduate of Indiana University School of Medicine, has spent twenty years in China, teaching at the Peiping Union Medical College, doing research in skin diseases and training Chinese doctors in the treatment of skin diseases and syphilis. He has also taught and practiced at Indiana University and at Johns Hopkins University School of Medicine, Baltimore.

MINNESOTA

O'Brien Memorial Professorship.—The Minnesota Division of the American Cancer Society, Inc., has established a full professorship in cancer research at the University of Minnesota Medical School, Minneapolis, in memory of Dr. William A. O'Brien, president of the division for ten years before his death. A $5,000 fellowship, established by the division three years ago and held at present by Dr. Robert A. Huseby, will be extended to the full professorship.

Newspaper Award to State Society President.—Dr. Archibald E. Cardle, Minneapolis, president of the Minnesota State Medical Association, on June 9 received the *Minneapolis Star and Tribune* Award for leadership in Minnesota. The award consists of a watch pendant inscribed "For Leadership in Minnesota" and a certificate which reads: "In Recognition of Leadership in Minnesota. Whereas A.E. Cardle as President of the Minnesota State Medical Society has given a service to Minnesota that has added to this state's supremacy as a place in which to live and work, has brought additional respect to his organization and has enhanced his own prestige as a citizen, the *Minneapolis Star and Tribune* presents to him this Leadership Award."

MISSISSIPPI

Medical Rural Scholarships.—Scholarship awards have been granted to fourteen prospective Mississippi doctors by the board of medical education. These students agree to return to practice in rural Mississippi. The program, inaugurated in 1946, has granted 129 scholarships thus far.

Child Guidance Service.—The Mississippi State Board of Health announces the expansion of child guidance services with the opening of a clinic in Greenwood. Children and parents will be given aid in handling emotional problems. Referrals may be made by parents, teachers, physicians, public health officials, the Youth Court and social agencies.

NEBRASKA

Research on Iron Compounds.—The University of Nebraska Foundation has received a grant of $4,000 from the Smith-Dorsey Company, pharmaceutical house, for a study to determine the comparative absorption from the intestinal tract of different iron-containing compounds and their efficacy in regeneration of hemoglobin.

State Medical Election.—At the recent meeting of the Nebraska State Medical Association in Lincoln, Dr. James E. M. Thomson, Lincoln, was installed as president, and Dr. Joseph D. McCarthy, Omaha, was chosen president elect. Dr. McCarthy was also elected delegate to the American Medical Association, with Dr. Harold S. Morgan, Lincoln, alternate. Dr. Roy B. Adams, Lincoln, will continue as secretary-treasurer.

NEW JERSEY

Society News.—At the recent meeting of the New Jersey Obstetrical and Gynecological Society Dr. Herschel S. Murphy, Roselle, became president, Dr. George B. German, Camden, was made president-elect, and Dr. Benjamin Daversa, Spring Lake, was elected secretary-treasurer.

Dr. Bergsma Appointed State Health Commissioner.—Dr. Daniel Bergsma, Trenton, on June 1 assumed duties as New Jersey's first state commissioner of health under the 1947 reorganization of the health department. He replaces Dr. J. Lynn Mahaffey, Haddonfield, former state health director who has been acting as health commissioner since the department reorganized last year. Dr. Bergsma has been with the state department since 1938. After service in World War II, he was named deputy director and last July 1 became public health consultant.

NEW YORK

Dr. Blaisdell Honored.—Five hundred employees and members of the board of visitors of the Rockland State Hospital, Orangeburg, at a dinner May 24 honored Dr. Russell E. Blaisdell, superintendent of the institution since it opened in 1930. He will retire July 1. On the following day one thousand residents gave a dinner for him in Spring Valley. Dr. Blaisdell has served forty-two years with the department of mental hygiene in New York.

Conferences on Diarrhea of the Newborn.—The state medical society and the state department of health are sponsoring one-day institutes on diarrhea of the newborn in each of the eleven state medical society regions outside New York City. The program for each institute includes a discussion of diagnosis and treatment, the epidemiologic basis for the new Regulation 35, simplification of nursery technics and hospital administration in relation to the control of the disease. A question and answer period follows each program.

New York City

Personal.—Dr. George A. Friedman presented a paper on "Military and Civilian Aspects of Reconstructive Surgery" before the Medical Society of the County of Washington April 13 at Granville.

University Appointments.—Dr. Otto Lowenstein, clinical professor of neurology at New York University College of Medicine, has been appointed professor of neurology at Columbia University College of Physicians and Surgeons. Dr. Lowenstein was associated with Bonn University in Germany, where he was head of the department of pathopsychology. From 1931 to 1933 he was a clinical professor of neurology at New York University. Dr. Cushman D. Haagensen, formerly assistant professor of surgery at the university, was recently promoted to associate professor of clinical surgery

Home Nurse Service.—The Visiting Nurse Service of New York, a public health nursing organization which provides skilled home nursing care by the visit and health guidance for families, day nurseries and small industrial plants, last year made more than 348,662 home-nursing visits. All persons receiving nursing care must be under the supervision of a physician. Almost one third of all babies born in Manhattan, the Bronx and Queens received nursing service from the organization, and over 4,000 expectant mothers were taught to prepare for and care for their babies. While $1.75 per visit is charged to those who can afford to pay, about 49 per cent of the visits are to indigent patients. The organization is largely dependent on contributions for carrying on its free services.

OHIO

Model Poliomyelitis Training Center.— The National Foundation for Infantile Paralysis has announced that it has awarded a five year grant of about $100,000 to Western Reserve University School of Medicine, Cleveland, to set up a model poliomyelitis training center for doctors, nurses and physical therapists. The new center, fifth of its kind sponsored by the National Foundation, will be under the direction of Dr. John A. Toomey, professor of clinical pediatrics and contagious diseases at the university, assisted by a staff of experts on poliomyelitis. Training courses will consist of lectures and demonstrations at City Hospital. The first of three ten-day courses for physicians is scheduled to open July 5. Two week courses for nurses and physical therapists, consisting of lectures, demonstrations and practice, begin July 16.

Physicians' courses will include study of the psychic factors accompanying infantile paralysis, such as the mental attitudes of the handicapped and the psychologic pattern of the respirator patient; the role played by the orthopedist in relation to the patient with poliomyelitis in the chronic stage, and the special technics of physical therapy and orthopedic nursing. Physical therapy training will cover such topics as hydrotherapy, normal joint motion and stretching, the evaluation of muscle strength and muscle reeducation. Subjects scheduled for the nursing courses are: recognition of muscle tension, application of hot packs, position of the patient in bed, coordination of nursing and physical therapy duties and the special problems in the care of the respirator and the patient with bulbar paralysis. Some of the courses will be available to local students of medicine, and qualified candidates may be sponsored by their "hometown" chapter of the foundation. Application should be made either to Dr. John A. Toomey or to the National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

WEST VIRGINIA

New Bureau of Hospital and Medical Care.—Dr. Joseph A. Markley, formerly of Morgantown, has been named director of the state health department's new bureau of hospital and medical care. A. J. Williamson, Charleston, former administrator of Charleston General hospital, will serve as field representative for the bureau, which has been set up under the provisions of the hospital licensing law, enacted by the legislature in 1947. Dr. Markley organized Health District No. 4 in 1937 with headquarters at Weston, where he remained until 1940; he was then placed in charge of a hospital under the supervision of the U. S. Department of Agriculture in the Florida Everglades. During World War II Dr. Markley served as U. S. Public Health Service regional medical officer; at the end of the war he located at Miami, Fla., where he engaged in general practice.

WISCONSIN

Course in Infantile Paralysis.—Dr. Hart E. Van Riper, medical director, National Foundation for Infantile Paralysis, will open the course in infantile paralysis at the University of Wisconsin Medical School, Madison, June 28, and will address the dinner meeting at the Loraine Hotel that evening. The course in the diagnosis and care of poliomyelitis is being presented by the medical school and the local chapters of the National Foundation for physicians in Wisconsin, through a selected group of specialists.

VIRGINIA

Personal.—Professor Karl Lindner, chief of the Eye Clinic, Vienna, Austria, delivered seven lectures at the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, February 23-25.

Narcotic Violation.—According to the Bureau of Narcotics, Washington, D.C., Dr. Robert S. Fitzgerald, Martinsville, pleaded guilty to violation of the federal narcotic laws in the U.S. District Court at Danville. On February 24 his sentence was suspended, and he was placed on probation for a period of five years.

University Appointment.—Dr. Samuel D. Sturkie, director of health and welfare for the city of Lynchburg, has been appointed associate professor of preventive medicine in the University of Virginia Department of Medicine, Charlottesville, effective July 1, succeeding Dr. Thomas S. Englar, resigned. Dr. Sturkie is a graduate of the University of Georgia School of Medicine, Augusta, and was appointed health officer in 1934 in Alabama after attending Johns Hopkins School of Public Health. He served as health officer with headquarters in Marion from 1941 to May 1943, when he assumed his present post in Lynchburg.

GENERAL

Statistical Bulletin Available.—The *Statistical Bulletin* of the Metropolitan Life Insurance Company, a monthly publication, is available to physicians on request to the Statistical Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York 10.

Dr. Zentmayer Receives Howe Award.—The Howe Medal of the American Ophthalmological Society for 1948 has been awarded Dr. William Zentmayer, Philadelphia. The medal was first awarded in 1922, and since then it has been given only fifteen times. Ten of the recipients have been distinguished American ophthalmologists and five outstanding foreign ophthalmologists.

Personal.—Basil O'Connor, chairman of the American Red Cross and president of National Foundation for Infantile Paralysis, was last month awarded a gold medal of the National Institute of Social Sciences. Under his guidance, the institute said, the National Foundation "has achieved a high and permanent place in the land, offering new hope for stricken youth to face courageously a brighter future."

Report of the Markle Foundation.—According to the annual report of the John and Mary R. Markle Foundation, $460,000 was appropriated in 1947 as gifts to colleges and universities for research. Thirty-five institutions received grants, the largest being $60,000 to the Committee on Research in Endocrinology of the National Research Council. The appropriations made during the year for medical research were on a terminal basis of a new program under which the foundation is aiding selected young scientists seeking careers in teaching and research in medical schools (THE JOURNAL Sept. 27, page 238).

Plague Infection in Western Rats.—The U. S. Public Health Service reports that on May 4 plague infection was proved in pools of fleas from rats and mice as follows: In Navajo County, Ariz , a pool of 42 fleas from 4 wood rats were trapped April 15 about 1½ miles southeast of Pinetop; in Lincoln County, New Mexico, a pool of 20 fleas from 21 wood rats were trapped April 15 on a road 3 miles east of Capitan; in Kittitas County, Washington, a pool of 180 fleas from 70 field mice were trapped April 14 6 miles east of Kittitas.

Campaign to Reduce Children's Accidents.—A reduction in the number of children's accidents is the objective of an intensive campaign to be launched this fall by the Metropolitan Life Insurance Company with the cooperation of the U. S. Children's Bureau, the American Academy of Pediatrics and the National Safety Council. Accidents are the leading cause of death among children of more than 1 year of age, with death rates per 100,000 population far surpassing those of any other cause. The program is planned to encourage public health, medical, safety organizations and the public to give greater attention to child safety A 12 page booklet, "Help Your Child to Safety," is addressed to parents and emphasizes ways of combating physical hazards and unsafe practices resulting in injuries to children. The booklet and other source material will be available from the company on request by September 1 for use in local organized child safety programs.

Awards in Internal Medicine.—Dr. Fuller Albright, Harvard Medical School, Boston, was given the Squibb Award for 1948 at the meeting of the Association for the Study of Internal Secretions in Chicago June 18. Dr. Albright was cited for his contributions on functions of the hormones, his investigation of hyperparathyroidism and hypoparathyroidism, renal disorders, diseases of bone and of the adrenal glands. Dr. Carl G. Heller, University of Oregon Medical School, Portland, was given the Ciba Award for 1948 for his contributions to the physiology of reproduction, with particular reference to the diagnosis and treatment of disorders of reproduction in man. To Dr. Ernest M. Brown Jr., of the George S. Cox Medical Research Institute, University of Pennsylvania, Philadelphia, the society awarded the Ayerst, McKenna and Harrison Fellowship. Dr. Brown will work with Dr Francis D. W. Lukens, Philadelphia, on the production of lesions of the islands of Langerhans.

Research in Heart Disease.—The American Foundation for High Blood Pressure is allocating $75,000 to research on hypertension, arteriosclerosis and associated diseases. The foundation has set up a three member allocations board outside the foundation to provide an impartial and neutral body to consider requests. Members of the board are: Dr. Harry Goldblatt, professor of pathology, University of Southern California School of Medicine, Los Angeles; Dr. Thomas Addis, professor of medicine, Stanford University School of Medicine, Stanford University-San Francisco; and Dr. William Dock, professor of medicine, Long Island College of Medicine, Brooklyn. Distribution of funds, the first allocation of the foundation, will be made to medical schools, hospitals or medical centers. Later, funds will be made available for support of postdoctoral fellows carrying on research on a full time basis. Requests to the foundation at 705 Marion Building, Cleveland, Ohio, for funds for research will be solicited without reference to the amount of money now available for allocation. Worthy requests which cannot be supported at present will be considered at the time of later allocations.

Hospital Construction in Southern States.—Thirteen Southern states will receive $33,215,250, provided by the Federal Hospital Survey and Construction Act of 1946 in annual grants in aid, alloted on the basis of population, per capita income and need. According to the May issue of *New South*, state surveys of hospital facilities indicate that the most acute deficiency is in beds for chronic illness, for which nine states have a total of only 1,877 and a need for 36,489.

All Southern states have had their hospital construction plans approved by the Surgeon General. The poorest rural community will be given first chance at federal hospital aid. Projects already begun include: Florida—five general hospitals, two children's chronic disease hospitals and one psychiatric unit; Georgia—eleven projects to provide 645 general beds and 50 additional chronic disease beds; Alabama--seven projects approved and ground broken for the first hospital; Mississippi--by the end of 1947, 67 out of 82 Mississippi counties had full time health departments; construction of fourteen hospitals and seven health centers has been authorized; Oklahoma—fourteen general hospitals, two community clinics two tuberculosis hospitals, one mental hospital and one auxiliary laboratory. South Carolina is devoting about two thirds of the total funds available for the five year period to building of general hospitals, and Louisiana for the first year is allotting 70 per cent to general hospitals, 12 per cent to public health centers and 9 per cent each to tuberculosis and mental hospitals. Alabama, Mississippi and South Carolina have appropriated state funds to supplement federal and local funds for hospital construction, and other states are considering such addition. In Louisiana a statewide system of government-owned hospitals already provides care for about 30 per cent of the entire white population and 50 per cent of the Negro population. Virginia also operates medical care programs for its indigent in which the state supplies funds to local community hospitals on a matching basis. In Texas, a number of highly successful cooperative health centers and hospitals have bden organized in towns of 2,500 population or less.

Marriages

JAMES CLINTON MONTEITH of Nyack, N.Y., to Miss Anita Ross Taylor of Scarsdale, N.Y., March 20.

WILLIAM DULANEY LEWIS JR., Richmond, Va., to Miss Ruby Louise Martin of Roanoke, March 6.

WILLIAM EDWARD LAUPUS, Seymour, Ind., to Miss Evelyn Estelle Fike of Ahoskie, N.C., March 6.

JOSEPH HOLLAND BURCHENAL, Noroton, Conn., to Miss Joan Barclay Riley of New York, March 20.

ROY E. MCDONALD, Erie, Pa., to Mrs. Ann Courtenay Bennett of London, England, March 22.

ROBERT S. BEEKMAN to Miss Mary Marckwald, both of New York, April 3.

JOHN PALFREY AYER, Milton, Mass., to Miss Lea Zimmerman in Tucson, Ariz. March 20.

GEORGE R. MCNEAR JR., Scarsdale, N.Y., to Miss Virginia Eleanor Gray in Maplewood, N.J., March 4.

JOHN STEPHEN THOMPSON, Bloomfield, N.J., to Miss Irene Ruth Malcolm in Roselle, May 1.

ROBERT MURRAY CUSHING, New York, to Miss Robin Fersten of Riverdale, N.Y., April 25.

JAY BEVERLY MOSES, Hamilton, N.Y., to Miss Irma Smith of Springfield, Mo., April 22.

Deaths

William Darrach ⊕ Greenwich, Conn., dean emeritus and professor of clinical surgery at the Columbia University College of Physicians and Surgeons in New York, died in the Greenwich Hospital May 24, aged 72. Dr. Darrach was born in Germantown, Pa., March 12, 1876. Following graduation from Columbia University College of Physicians and Surgeons, 1901, he interned at Presbyterian Hospital, where in 1913 he became an associate attending surgeon, and later a visiting attending and consulting surgeon. He served on the faculty of Columbia University as a demonstrator in anatomy, from 1903 until 1909 and an instructor in surgery from 1903 to 1916, when he became professor of clinical surgery. In 1919 he was appointed dean of the medical faculty, serving until he was made dean emeritus in 1930. It was during his administration that the Columbia-Presbyterian Medical Center was erected. In 1928-1929 he was a member of the administrative board of Columbia School of Nursing and from 1919 to 1928 was president of the board of managers of the Sloane Hospital for Women and the Vanderbilt Clinic. During World War I Dr. Darrach was surgical director of the United States Army Base Hospital number 2 and also was on detached service with the British Expeditionary Force in Charge of General Hospital number 1. He remained with the occupation armies until 1919, when he was discharged with the rank of colonel. During World War II Dr. Darrach was civilian consultant in surgery to the Surgeon General, and in 1945 he was chief consultant to the Veterans Administration in New York. He also had been director of education and research at the the Veterans Administration Hospital in the Bronx. Dr. Darrach was a fellow of the American College of Surgeons and a member of its board of governors, a past president of the American Surgical Association, Association of American Medical Colleges and of the Society of Clinical Surgery. He was member of the founders' group of the American Board of Surgery, a member of the American Association of Anatomists, the Société de Chirurgiens de Paris, American Association for the Advancement of Science, New York Academy of Medicine, American Philosophical Society and others. He was a consulting surgeon at the Northern Westchester Hospital in Mount Kisco, N.Y., Greenwich (Conn.) Hospital, Morristown (N.J.) Hospital, Beekman Street Hospital, Willard Parker Hospital and New York Orthopaedic Dispensary and Hospital. From 1929 to 1937 he was a member of the board of trustees of Vassar College in Poughkeepsie. Dr. Darrach received many honarary degrees, including a doctorate of laws from St. Andrews University in St. Andrews, Scotland. For many years he was an associate editor of *Archives of Surgery*.

Frank Newcomer Hoffmeier ⊕ Hagerstown, Md., born in Middletown, Md. Sept. 15, 1876; Hahnemann Medical College and Hospital of Philadelphia, 1903; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., Southern Medical Association and American College of Radiology; during World War I served overseas with Evacuation Hospital number 17 in Vladivostock, Siberia, as roentgenologist with the rank of Captain; since February 1947 roentgenologist at the Veterans Administration Center in Martinsburg, W. Va.; for many years affiliated with Washington County Hospital; died February 19, aged 71, of coronary occlusion.

William Eager Howard, Dallas, Texas; born in San Antonio, Tex., Feb. 9, 1877; University of Texas School of Medicine, Galveston, 1897; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; one of the founders of the Texas Society of Ophthalmology and Otolaryngology; formerly vice president of the Pan American Medical Association; veteran of the Spanish-American War; on the staffs of St. Paul's Hospital and the Dallas City-County Hospital System; died February 21, aged 71, of angina pectoris.

August William Fredrich Westhoff, Richmond Hill, N.Y.; Bellevue Hospital Medical College, New York, 1891; member of the American Medical Association; fellow of the American College of Physicians; formerly on the faculty of his alma mater; director emeritus of medicine at the Wyckoff Heights Hospital, Brooklyn; served as attending physician and a member of the medical board of the Bethany Deaconess Hospital and as consultant at St. Cecilia Hospital for Women in Brooklyn; died February 21, aged 82, of cerebral hemorrhage.

Ludwig W. Anderson, Atwater, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; died February 19, aged 65.

Esther Lydia Boyer ⊕ Missoula, Mont.; University of Wisconsin Medical School, Madison, 1939; interned at the Madison General Hospital in Madison, Wis.; formerly instructor in the department of anatomy at Woman's Medical College of Pennsylvania, Philadelphia, and instructor in surgery and assistant physician in the student health department at the University Hospitals, Columbia, Mo.; member of the Western Montana Clinic; died March 5, aged 45.

Edward Wilbur Burke ⊕ Redlands, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; an Affiliate Fellow of the American Medical Association; affiliated with the Redlands Community Hospital; died March 3, aged 74, of heart block.

Charles F. Byrd, St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1895; served as county coroner; died February 20, aged 80.

Emmett Davis ⊕ Library, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1911; died March 3, aged 62, of coronary thrombosis.

Frank Judson Edgett, Amityville, N.Y.; Maryland Medical College, Baltimore, 1912; New York Homeopathic Medical College and Flower Hospital, New York, 1916; health officer; served on the staff of the Brunswick Home, where he died February 26, aged 60.

George K. Gordon, Malden, Mass.; Tufts College Medical School, Boston, 1919; served during World War I; died in the Mount Sinai Hospital, New York, March 3, aged 53, of heart disease.

Edwin R. Gould, Buffalo; University of Buffalo School of Medicine, 1900; died March 1, aged 79, of coronary thrombosis.

Joseph E. Gower ⊕ Spearman, Texas; Kansas City (Mo.) College of Medicine and Surgery, 1919; served as county health officer; died in Shattuck, Okla., February 29, aged 71, of acute nephritis.

Theodore F. Hammermeister ⊕ New Ulm, Minn.; University of Minnesota Medical School, Minneapolis, 1915; died February 14, aged 60.

Ralph Bolender Hannah, Georgetown, Ohio; Miami Medical College, Cincinnati, 1896; member of the American Medical Association; president of the Brown County Medical Society; died in Christ Hospital, Cincinnati, February 25, aged 74, of cerebral hemorrhage.

Vincent Valentine Hardeman, San Francisco; College of Physicians and Surgeons of San Francisco, 1918; died February 29, aged 60, of coronary thrombosis.

Gilbert Cole Herndon, San Antonio, Texas; Baylor University College of Medicine, Dallas, 1935; member of the American Medical Association; served during World War II; died February 6, aged 36, of injuries received in an automobile accident.

Gerrit Heusinkveld ⊕ Denver; University of Colorado School of Medicine, Denver, 1920; died February 26, aged 58, of coronary occlusion.

Dorsey Mark Hines ⊕ Auburn, Ind.; Indiana University School of Medicine, Indianapolis, 1909; served overseas during World War I; affiliated with the Sacred Heart Hospital in Garrett, and Sanders General and Dr. Bonnell M. Souder Hospitals, died February 25, aged 61, of nephritis.

Oliver Hunt Howe, Cohasset, Mass.; Harvard Medical School, Boston, 1886; member of the American Medical Association; for many years school physician and medical examiner in Cohasset; president and trustee of the Cohasset Free Public Library; past president of the Norfolk South District Medical Society; died March 1, aged 87

Vincent Joseph Irwin Jr. ⊕ Springfield, Mass.; Yale University School of Medicine, New Haven, 1909; member of the American Academy of Ophthalmology and Oto-Laryngology; specialist certified by the American Board of Otolaryngology; served during World War I; died February 26, aged 60, of coronary thrombosis.

George Chauncey Jameson ⊕ Oberlin, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1893; for many years chief of staff at Allen Hospital; one of the founders of the Oberlin Hospital Association; died February 29, aged 82, of complications following pneumonia.

William Leonard Karcher ⊕ Freeport, Ill.; Medico-Chirurgical College of Philadelphia, 1900; past president of the Stephenson County Medical Society; fellow of the American College of Surgeons; affiliated with St. Francis and Evangelical Deaconess hospitals; died March 3, aged 73, of carcinoma of the stomach with metastases of the liver.

Robert James Kennedy, New Rochelle, N. Y.; Temple University School of Medicine, Philadelphia, 1939, on the staff of New Rochelle Hospital; died in Chattanooga, Tenn., February 28, aged 33, of mitral stenosis and rheumatic fever.

Charles Francis Kuhn, Port Townsend, Wash., Long Island College Hospital, Brooklyn, 1883; also a graduate in pharmacy; served as health officer of Port Townsend; formerly surgeon of the United States Army, Alaska Treadwell Mine in Treadwell, Alaska and the Marine Hospital Service; died in St. John's Hospital February 13, aged 87, of cardiovascular renal disease.

Frank Kunz ⊕ Akron, Ohio; Western University Faculty of Medicine, London, Ontario, Canada, 1906; died February 27, aged 65, of coronary occlusion.

Forrest Leroy Leland, South Hadley Falls, Mass.; Tufts College Medical School, Boston, 1908; fellow of the American College of Surgeons; for many years served on the board of health; member of the American Medical Association; died February 26, aged 67, of coronary thrombosis.

Rollo Bertell Lester, Desloge, Mo.; Washington University School of Medicine, St. Louis, 1904; member of the American Medical Association; affiliated with the State Hospital, Nevada, where he died February 14, aged 72, of cerebral hemorrhage.

Henry Lovett, Philadelphia; Jefferson Medical College of Philadelphia; 1888; at one time practiced in Langhorne, Pa. where he was president of the People's National Bank; died in the Friends Hospital February 22, aged 82.

Robert Cooley Maddox ⊕ Rome, Ga.; Atlanta Medical College, 1916; member of the board of education; past president of the Floyd County Medical Society; president elect of the Seventh District Medical Society; a trustee of the Darlington School for Boys and for many years school physician; served during World War I; died February 23, aged 54, of heart disease.

Wasel Maholage Jr., Mahanoy City, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1934; member of the American Medical Association; died in the Hahnemann Hospital, Philadelphia, February 28, aged 39, of pneumonia.

Ernest George Maier ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1905; assistant professor of gynecology at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; for many years affiliated with Physicians and Surgeons Hospital; died March 5, aged 68, of acute nephritis.

Ralph Vernon Moore ⊕ Portland, Ore.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; fellow of the American College of Surgeons; affiliated with the Emanuel Hospital; died in the Fairlawn Hospital February 26, aged 70, of arteriosclerosis.

Oscar James Mullen, Philadelphia; Temple University School of Medicine, Philadelphia, 1906; member of the American Medical Association; died in the American Stomach Hospital February 29, aged 71.

Bernard Joseph Neary, Johnstown, Pa.; University of Louisville (Ky.) Medical Department, 1911; served during World War I; formerly affiliated with the Indian Service; died February 24, aged 72, of arteriosclerotic heart disease with recurrent infarctions.

Edmund J. Overend, Oakland, Calif.; Medical College of the State of South Carolina, Charleston, 1883; Jefferson Medical College of Philadelphia, 1884; past president of the Alameda County Medical Society; died February 24, aged 93, of bronchopneumonia and influenza.

Gustavo Federico Porro, Tampa, Fla.; Universidad de la Habana Facultad de Medicina y Farmacia, Cuba, 1926; died February 29, aged 47, of coronary thrombosis.

Auguste Rhu, Marion, Ohio; Western Reserve University School of Medicine, Cleveland, 1895; member of the American Medical Association, serving in 1912 as a member of its House of Delegates; past president of the Marion Academy of Medicine; formerly secretary of the Ohio State Medical Association; fellow of the American College of Surgeons; died February 27, aged 93.

John D. Rice, Hiawassee, Ga., Atlanta College of Physicians and Surgeons, 1900; died January 23, aged 73.

Alice Lucinda Root, Winthrop, Mass.; Electropathic Institute, Philadelphia, 1876; died February 22, aged 92.

Charles Whitall Root, Ravenswood, W. Va.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; died February 25, aged 79, of carcinoma of the liver.

William Grant Ross, Kempton, Ill.; Rush Medical College, Chicago, 1902; died February 25, aged 79, of coronary thrombosis.

Wilson J. Seal, Sneedville, Tenn. (licensed in Tennessee in 1906); died March 1, aged 78, of angina pectoris.

Alfred Marion Shaw ⊕ Chicago; Rush Medical College, Chicago, 1910; died in Presbyterian Hospital February 7, aged 76, of cerebral thrombosis and arteriosclerosis.

Karl Vollmer ⊕ Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1892; past president of the Illinois-Iowa Central District Medical Society; past president and secretary of the Scott County Medical Society; for six years a member of the school board; affiliated with Mercy and St. Luke's hospitals; died February 19, aged 78, of hypertensive heart disease.

Arthur Willard Watson, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1880; member of the American Laryngological Association; formerly associated with the staffs of the Jewish, University and Episcopal hospitals; died February 17, aged 89, of bronchopneumonia.

James Henry Wayland, Plainview, Texas; Kentucky School of Medicine, Louisville, 1886; died in February, aged 84.

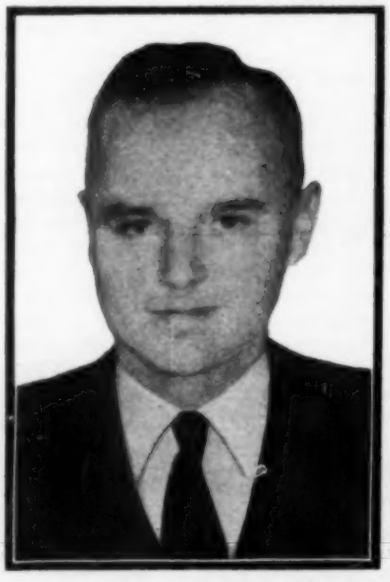
George Dillard Wells, Los Angeles; Barnes Medical College, St Louis, 1911; member of the American Medical Association; died February 9, aged 62.

Egbert Hayes Wesson, New Albany, Miss ; College of Physicians and Surgeons, Memphis, Tenn., 1911; served during World War I; died in Veterans Administration Hospital, Memphis, Tenn., February 29, aged 58, of heart disease.

Frank Alonzo White ⊕ Childress, Texas; University of Louisville (Ky.) Medical Department, 1904; past president of the Childress-Collingsworth-Donley-Hall Counties Medical Society and of the Panhandle District Medical Society; formerly secretary of the Hopkins County Medical Society; member of the Texas Society of Ophthalmology and Otolaryngology; local physician for the Fort Worth and Denver Railroad; died January 24, aged 76, of coronary occlusion.

KILLED IN ACTION

LIEUT. COL. WILLIS H. DRUMMOND
M.C., A.U.S., 1899-1944



CAPT. JOHN R. MAGRUDER
M.C., A.U.S., 1914-1945

CAPT. JOHN E. EDGE
M.C., A.U.S., 1919-1945

Willis Hinton Drummond ⊕ Lieutenant Colonel, M.C., U.S. Army, Hollywood, Calif.; State University of Iowa College of Medicine, Iowa City, 1924; fellow of the American College of Surgeons; certified by the National Board of Medical Examiners; U.S. Army Medical School in 1931; entered the medical corps of the U.S. Army as a first lieutenant in 1929; went to the Philippines from Walter Reed General Hospital in Washington in 1940 and was serving at the Sternberg General Hospital in Manila when the war broke out; promoted through the various ranks to that of lieutenant colonel; killed in an air attack in the Pacific area Dec. 15, 1944, aged 45, while being transported aboard a Japanese vessel from the Philippine Islands to Japan.

John Robinson Magruder, Baltimore; born in Baltimore May 21, 1914; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1939; interned at the Baltimore City Hospital in Baltimore; interned at the Charity Hospital in New Orleans, where he served a residency; began active duty as a first lieutenant in the medical corps, Army of the United States, in May 1942; assigned to duty at Brooks Field, San Antonio, Texas; after four months was transferred to the 76th Station Hospital, Camp Livingston, La., performing duties of surgeon, and accompanied that unit to the Pacific theater, where he also served with the 22nd Station Hospital and the 97th Portable Surgical Hospital; promoted to captain; died in action on Luzon Island Aug. 22, 1945, aged 34.

John Evans Edge, Bryan, Texas; University of Texas School of Medicine, Galveston, 1943; interned at the Graduate Hospital of the University of Pennsylvania in Philadelphia; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 1, 1944; stationed at Carlisle Barracks, Pa., Ashford General Hospital, White Sulphur Springs, Va., and Camp Barkeley, Texas; assigned to 82nd Medical Battalion of the 12th Armored Division (7th Army ETO); promoted to captain; awarded the Purple Heart and the Meritorious Service Plaque--82nd Medical Battalion; wounded at Bertheim, Germany, April 8, 1945; died at the 11th Evacuation Hospital at Lauda, Germany, April 9, 1945, aged 25, of wounds received in action.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 22, 1948.

International Congress on Mental Health

Yet another medical international congress is to be held in London. It has unusual importance in that it aims at taking part in international politics and exerting a healing influence on a sick world. In this third International Congress on Mental Health three main bodies are concerned: the International Committee for Mental Hygiene, the International Committee for Child Psychiatry and the International Federation for Medical Psychotherapy. Some forty-five nations intend to take part. At present nearly two hundred working parties spread over the world are actively preparing material for the program. Educators, sociologists, clergymen, anthropologists, psychiatrists, psychologists and others are turning their attention from academic and individual problems to the study of tensions of communities. The main theme, mental health and world citizenship, indicates that at this congress the emphasis is on sick groups and, indeed, on the sick world: the aim is the achievement of sounder mental health. The congress has the full approval of the British government and the active support of the World Health Organization and of UNESCO. The last has made a substantial grant toward bringing representatives from the war-damaged countries, who would otherwise be prevented from attending by currency restrictions and lack of funds. In addition to the considerable general expenses of a large congress, the organizers are endeavoring to raise a sum of at least $40,000 to pay the expenses of more than two hundred of these delegates.

A large number of working parties are now busy, and on the results of their labors the chief speakers of the congress will be chosen. The children's group is to discuss the development of personality and its individual and social aspects with special reference to aggression. The section dealing with treatment will discuss various aspects of guilt. The main conference on mental hygiene, taking mental health and world citizenship as its theme, will spend a full week on such topics as the individual and society, family problems and psychologic disturbances, and mental health in industry and industrial relations. The suggestion that the congress may develop a permanent organization for mental health, and thus try to find some hope for a frightened world, has received the support of the executive secretary.

Priority on Milk For Polyarthritic Patients

Although three years have passed since the end of the war, the British are still subject to confiscatory taxation, food shortages, rationing and numerous controls of production and individual expenditure. Fresh regulations are always being made to meet the difficulties arising when a government tries to control everything. Recently the Minister of Food, on the advice of the Food Rationing Special Diets Advisory Committee, has decided that patients with an active form of polyarthritis associated with a raised sedimentation rate and loss of weight shall be allowed a priority claim on the supply of 1 pint (473 cc.) of liquid milk a day, on the basis of a certificate from their physician. The minister would like to have made milk available to patients with other types of arthritis also, but the supply is not sufficient for this purpose. The previous criteria have been adopted in order to insure that the limited supply available shall go to those whose need is greatest. When a doctor decides to certify a patient as suffering from infective polyarthritis his certificate should contain the following information: (1) a statement that the condition is active, infective polyarthritis; (2) whether there has been loss of weight, and (3) the value of the sedimentation rate and the date the test was done.

Bill To Protect Workers in Radioactive Substances

A short time ago trade union leaders alleged that some workers in radioactive substances had sustained serious injuries, but this has never been confirmed. However, the government has introduced a Radioactive Substances Bill to protect workers and the public against harmful exposure to radiation. The regulations are similar to those which already exist under the Factories Act for the protection of employees in hospitals, laboratories and industrial establishments. Radium, radon and certain irradiating apparatus, principally roentgen ray tubes, are covered. The legislation applies to all places where radioactive substances or irradiating apparatus are manufactured, treated, stored or used. The disposal of radioactive waste will be controlled, and regulations may be made to prevent injuries during transport of these substances. Only medical and dental practitioners or persons working under their direction who hold a license from the Minister of Health will be allowed to use certain apparatus and radioactive substances for the treatment of patients. The supply of such substances to the public in the form of medicines or toilet preparations will be illegal except under the authority of a prescription from a physician.

OSLO

(From Our Regular Cortespondent)

May 15, 1948.

Tuberculin Control for All

In 1939 the Norwegian Association of Tuberculosis Doctors recommended tuberculin testing and registration of every one up to the age of 30. On the West Coast of Norway Dr. Tobias Gedde-Dahl, recently appointed as secretary-general of the Norwegian National Association against Tuberculosis, has shown that this recommendation can be translated into remarkably effective action. From 1937 onward he has worked as district medical officer in an area with a population of about 6,500. Using the Pirquet test, he kept the negative reactors under subsequent periodic tuberculin control, while the positive reactors were kept under radiologic control. He has now published his results in a 235 page work entitled "Tuberculosis Infection in the Light of Tuberculin Registration:" A twelve page summary in English is a concession to readers who do not know the Norwegian language and to those Norwegians who like their reading condensed. During the observation period 1937-1944 Dr. Gedde-Dahl found that the overwhelming majority of the population in his district was still tuberculin-negative at the age of 15: about 80 per cent of the urban population and about 85 per cent of the rural. Even at the age of 30, about 30 per cent of the men and about 45 per cent of the women had not yet been infected. Hence, the conclusion that tuberculin control must be extended far beyond the age of 30. Another conclusion was that few children are infected in their homes; many sources

of infection are to be found outside them. Dr. Gedde-Dahl has found Pirquet testing far more effective than mass roentgenography as the first step in the discovery of new cases, and he prefers to make the latter subservient to the former, roentgenography to be reserved for tuberculin-positive reactors. During the period under review, the percentage of traced cases of progressive pulmonary tuberculosis in his district rose, but the mortality from pulmonary tuberculosis fell in the same period from 10.8 to 5.7 per ten thousand persons and that from all forms of tuberculosis from 13.5 to 6.4.

Scandinavian BCG Crusade in Europe

In a recent radio talk Dr. Galtung Hansen, who is at the head of the tuberculosis service in Norway, outlined the ambitious and stupendous scheme already set in motion for the examination of 50,000,000 children in eleven countries in middle and southern Europe with tuberculin with a view to the negative reactors' being vaccinated with BCG. The credit for the first steps in this scheme belongs to the Danish Red Cross, which began to operate it more than a year ago. With a recent grant of $2,000,000 and the cooperation of international health experts, the scope of this scheme has been enlarged and the participation of Norwegian and Swedish doctors and nurses has been secured. Between two hundred and three hundred teams, each consisting of one doctor and two nurses, are required for the execution of the scheme in the course of a year and a half. The five doctors and ten nurses who have volunteered in Norway for this service are undergoing special preparatory training. Their task and that of their Danish and Swedish colleagues will include the training in this work of other doctors and nurses in the countries visited.

A Statistical Study of Asthma in Norway

During 1946, Dr. Odvar Claussen, attached to Professor Olav Hanssen's staff at the Rikshospital in Oslo, undertook a statistical study which has added to knowledge of asthma. Or perhaps it will be nearer to the truth to say that he has been successful in emphasizing the many gaps in the knowledge of this disease. By securing the cooperation of eighty-six of the three hundred and seventy-seven District Medical Officers of Health in Norway he has been able to show that there were 1,190 asthmatic persons among the 295,356 inhabitants of the eighty-six districts studied. From these figures he concludes that there are at least 12,000 persons with asthma in the whole of Norway; whose population numbers about 3,000,000. Like other observers, Claussen found male patients in the majority (58.2 per cent), but he ventured on no explanation of this sex difference. In 47 per cent of the women the asthma began after the age of 30, and in 26 per cent after the age of 40. The corresponding figures for men were 41 and 24 per cent, respectively. In the first decade of life there were only 34 girls to every 66 boys, and in the second decade boys were still more in the majority (69 per cent). In as many as 50 cases the asthma had lasted for more than forty-five years. The average weight of both male and female patients was a trifle below normal. No great difference could be found in the frequency of asthma in coastal and inland districts, and Claussen could find no proof that climate has an important effect on its frequency. Capacity for work was reduced in most cases, and it was completely lost in 7.3 per cent of the men with an average age of 53 years and an average duration of the disease of eighteen years. Only 4.5 per cent of the women were completely invalided. In 29 per cent of the asthmatic patients there was a history of other allergic diseases such as chronic eczema, urticaria and hay fever; and in 50 per cent there was a family history of allergic disease. Apparently the asthma began at an earlier age when there was a family history of allergic disease than when there was no such history. Dr. Claussen concluded with calculations that justify the stamping of asthma as a national scourge.

BERLIN

(From Our Regular Correspondent)

May 9, 1948.

Penicillin in Western Zones and in Berlin

The flow of penicillin into the Western zones and into Berlin—where all four sectors are equal beneficiaries—is now regular enough to enable military authorities to put the drug at the disposal of German hospitals for the treatment not only of venereal diseases but of pneumonia, pleurisy, pulmonary abscesses, meningitis and septicemia. The distribution is in the hands of the *Landesgesundheitsamt*. In Berlin there are twenty hospitals which have penicillin on hand; other hospitals may get it on special application. The pharmaceutical firm of Schering in Berlin is now recovering penicillin from the urine of treated patients and thus adding materially to the stocks made available from the West.

New Medical Educational Developments

(a) Foundation of the Institute for Medicine and Biology.—The Berlin suburb Dahlem, now principal residential district for the American occupation forces, is the site of the once famous Kaiser-Wilhelm-Gesellschaft, widely known center of scientific research. As early as 1946, Nobel-prize-winner Professor Warburg reopened the institution of the "Dahlem Colloquium" meeting place and discussion forum for leading authorities in the fields of chemistry, physics and biology. Late in 1947 the constituent meeting of the Institute for Medicine and Biology took place within the Kaiser-Wilhelm-Gesellschaft. Seven institutes and one clinic are planned for this new research institution. Two, one for biochemistry and one for theoretic physics, are already in operation. Professor Lohmann is in charge of the whole project.

(b) Courses for Physicians in the American Sector of Berlin.—Beginning in the summer of 1948, courses will be given for physicians under the sponsorship of the Department of Public Health, Berlin sector. The expenses will be covered by funds from fines imposed on Germans by the military government. The courses will be given at the two largest hospitals in the American sector. German specialists will teach in their particular fields; lectures by American physicians are also planned.

(c) Association of Psychologists.—By the recent foundation of the Professional Association of German Psychologists of Hesse, the organization of all psychologists within the British and American zones was completed. The leaders of the Hesse association are Dr. Schnehage, of the labor office in Frankfurt, and Professor Duecker, Marburg, as representative of the German Society for Psychology.

Correspondence

EVALUATION OF FOREIGN GRADUATES

To the Editor:—In the May 1 issue of THE JOURNAL there appeared on page 16 an article signed by Dr. Lochner of Albany, N.Y., concerning the evaluation of foreign medical graduates. Unfortunately, that article contains misleading statements; here is a quick review of some of the errors he committed:

First, he did not even mention the existence of a tremendous difference among the various medical schools abroad; he simply englobed all of them, failing to distinguish between the very fine colleges (e.g., Paris, Lyon, Amsterdam) and some second class schools in certain European countries.

Second, he failed to mention that among the foreign graduates who try to revalidate their medical credentials in this country, a very large percentage are American-born youths who for one reason or another went abroad to study. Thousands of American boys went to Germany, Austria, Switzerland, England and other countries in Europe. It is a sad fact, but nevertheless indubitable, that in many European medical schools foreigners, and especially Americans, had to pass much "milder" examinations than did the natives of the countries and that in many of those countries diplomas delivered to foreigners carried the famous inscription "valid only for abroad," as the respective countries did not admit them for licensure. Hence, the large percentage of deficiently trained graduates and their failures in state medical examination in this country. It is obvious, however, that the global percentage of failures of foreign graduates as indicated by Lochner in his report is entirely silent concerning this exceedingly important detail.

Third, a purely quantitative approach to the statistical analysis of failures of foreign graduates is unjust, for it fails to take into consideration the important fact that many of those foreigners are physicians who for ten, fifteen or twenty years had their practice limited to certain specialties. An otherwise brilliant dermatologist may have difficulties in passing his examination in obstetrics, or even anatomy; the same holds true - *mutatis mutandis* - for a psychiatrist, gynecologist or other specialist. Thus, to compare an elderly specialist with a young, recently graduated colleague still in practice is, to say the least, unfair.

Fourth, Lochner fails to mention the well known fact that the immense majority of foreign graduates do participate in hospital and clinic work, just as the majority of their American graduated confrères, and with the same zeal and efficiency. Moreover, many a foreign graduate became nationally famous for his important scientific contributions, and many of them occupy positions as teachers and leaders in America's foremost schools and hospitals-seemingly to everybody's satisfaction. Indeed, practically all foreign doctors in this country become citizens, raise families and become thoroughly incorporated into American life. (Incidentally, many of them marry American women.)

Fifth, concerning the moral qualities of the foreign graduates, I am convinced that no generalization could be safely sustained; just as in any other group, there are nice persons among them and also some rather reprehensible ones. However, to judge all of them bad because some of them are arrogant or unthankful to this great country would be unjust.

MARDOQUEO I. SALOMON, Sc.D., M.D., Bronx, N.Y.

To the Editor:—In an article in THE JOURNAL, May 1, Dr. Jacob L. Lochner, of Albany, N. Y., reported about "Licensure Evaluation of European Medical Graduates." As long as there are by now several thousand foreign graduates in this country who have taken their state board examinations during the last fifteen years, the problem involved is bound to arouse considerable interest and attention in many medical communities of the Unites States.

Dr. Lochner's article presented a frank and violent attack on European immigrant physicians, and, as similar articles have appeared in other medical journals, it seems appropriate to hear somebody from the other camp.

Dr. Lochner started out in dealing with the different national systems of education, and cited the reports which the Commission of Medical Education made in 1932. For the most part, also, he considered medical education in Germany. The report stated that up to 1913 medical education in Germany was as good as any in the world; that it was, however, seriously affected by Hitler after 1938, so that the New York Board will not recognize medical education begun in Germany after 1940. Strangely enough, no mention was made about the standard of medical training and education between 1913 and 1938, although the vast majority of those immigrant doctors who have come to the United States during the last fifteen years received their training during that period. I suppose the outcome of an investigation must not have been unfavorable; otherwise Dr. Lochner would hardly have failed to mention it.

After those spearheads, Dr. Lochner set out for a full-fledged attack against foreign graduate doctors. Without any connection with the foregoing statements, he asked, "Now, what has been their success in passing the New York medical licensing examination? Their attitude has been, and strangely enough still is, that of arrogance and superiority. The majority have shown no friendliness or thankfulness to be allowed to come to this free and democratic country...." This is about as unsemantic a statement as it is possible to make. From Dr. Lochner's own statistics, 5,025 foreign graduates have passed-not only taken-their state board examinations between 1938 and 1946. How many of these doctors has Dr. Lochner checked on, talked to or heard of as being unfriendly or not thankful toward their new country? The majority of 5,025 would be more than 2,512. Besides, does he by any chance form his opinion from the reactions of disappointment when a doctor aged 50 or more, who is financially able just to tide himself over those first few months, flunks out? Would Dr. Lochner possibly be free from any emotional reaction if he should have the bad luck to have to try again in a new country and should have to take examinations fourteen times, as did the unfortunate man whom he cited? To get a proper idea about the attitude of foreign graduates, one should judge from those who have weathered the first storm and have been in practice for a year or two—not from those who, as Dr. Lochner admits, have been here just a short time.

"Many of the foreign physicians will complain! Do they come alone to complain? No! In practically every case they bring or send a member of the legislature or even a member of Congress." I find out, again from Dr. Lochner's figures, that there were 4,036 foreign graduates who failed during 1938 to 1941. If our senators and congressmen had to take care of only a small fraction of those 4,036 cases, say one tenth, they would certainly be kept more than busy, especially as long as they still have to take care of other business.

I would not state that every physician who has undertaken to start out anew in this country has been lovable or an asset, but one should not condemn a whole group which, just on account of gratitude and, I may say, love toward this country, is badly hurt by statements as they have come out of the mouth and pen of Dr. Lochner. Just as we have been trying hard to understand and adopt the American way of thinking and acting, which I think has gradually become a part of us, it may not be asking too much for us to try to understand those who have lived mostly for more than four decades under entirely different circumstances and in an entirely different semantic environment. What seems to be arrogance and superiority is often nothing of the kind; it is a different behavior explained by different upbringing. In a German university or hospital there is always present a distinct distance between the senior physicians down through the scale of the subordinate ones. A younger doctor has been trained to respect this distance, and a certain exaggerated reverence toward the older and upper members of the staff was the natural and expected attitude. This was probably a part of the militaristic structure of every German institution. Therefore it naturally takes time before such newcomers to this country will realize that everything functions just as well, if not better, without a clicking of heels and that there is nothing wrong in greeting your superior with a simple "hello." Inhibitions have to be overcome before the lack of necessity, or even the absurdity, of keeping "distance" is fully realized, even in the intercourse with colleagues on an equal footing. This is a part of the process of assimilation and adaptation which, of course, cannot be accomplished in two or three months but which most of the immigrants are seriously striving for, and, as I know, with a great deal of ultimate success. I believe that it is this inherited and trained attitude of German immigrants which gives rise to the impression of arrogance and superiority which Dr. Lochner finds so conspicuous in them.

All mankind sighs over the deterioration of human relations. Continuance of discrimination is an intellectual and spiritual attitude which cannot and will not lead the world out of the maze in which it has lost itself. We will not be able to build up a saner and less hostile society in smaller and larger measures unless we cultivate what men have in common rather than emphasize their differences.

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Medical Motion Pictures

FILM REVIEWS

Tattooing of Skin Grafts and Port Wine Stains. 16 mm., color, silent, 410 feet (one reel), showing time twelve minutes (to be run at sound speed). Prepared by Herbert Conway, M.D., Plastic Surgery Clinic, Cornell University Medical College, New York Hospital, New York. Produced in 1947 by the Medical Film Guild, New York. Procurable on loan from the author, 525 East Sixty-Eight Street New York 21.

This film shows the technic of tattooing for coloration of skin grafts on the face and the permanent camouflage of port wine stains (capillary hemangiomas) by injections of pigment. The technic of administration and the appearance of patients before and after the treatment are demonstrated. One patient with a split-thickness graft on the forehead is shown preoperatively and postoperatively. Another is shown with a spotty port-wine stain about the forehead and glabella. A few colored stills of light stains of the face before and after tattooing are used. The photography is excellent. The photomicrographs are incorrectly titled as microphotographs.

A Multiple Personality. 16 mm., color, sound, 675 feet (one reel), showing time sixteen minutes. Prepared in 1946 by John G. Lynn, M.D., and Raymond Sobel M.D., Department of Neurology, Columbia University and Psychiatric Institute, Grasslands Hospital, Valhalla, N.Y. Produced by and procurable on loan from the Medical Film Guild, 167 West Fifty-Seventh Street, New York 19.

A woman aged 24 who had been committed to the Grasslands State Hospital is portrayed as having four personalities each independent of and amnesic for the others. Under hypnosis the patient is directed to become successively Flossy, a conscience-free psychopath; Mickey, a passive, inhibited, fearful preadolescent; Florence, a naive, fearful child, and finally Miss Nelson, an affectless adult with an I.Q. of 130. The patient's posturings in these personalities are so transparent and the hypnotic technics used to effect the metamorphoses are so obviously inadequate that even an unsophisticated observer is led to wonder just who is supposed to be hypnotizing whom. The confusion is increased by many other defects in the film: slipshod photography, editing and synchronization; filled-in speeches; misplaced subtitles, and relatively pointless but persistent questionings of the patient as to whether or not she likes her physician. A final subtitle implies that the patient had been benefited by a combination of hypnotic and psychoanalytic therapy; yet in the last scene the only apparent changes in the patient's appearance and behavior are (1) a more becoming hair-do and (2) a willingness on her part to repeat various cliches to the effect that her "Flossie personality had been psychopathic," "Mickey" had suffered from a "guilt complex" and "Florence" had furnished a last escape. The film is chiefly remarkable as a throwback to the theories of Janet and Morton Prince about dissociation and splitting of the personality; as such, it might be useful in illustrating the recurrently atavistic tendencies in some psychiatric thinking.

Without critical and evaluative comment, however, it would be seriously misleading to medical students or even to physicians inexperienced in the interpretation of psychiatric phenomena.

The Surgical Treatment for Carcinoma of the Lower End of the Esophagus. 16 mm., color, silent, 1,100 feet (three reels), showing time forty-two minutes. Prepared in 1947 and procurable on loan from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

The film shows the resection of a cancer of the lower end of the esophagus through a combined abdominothoracic incision, depicting the technic of this difficult major operation. The surgical technic is excellent. The color photography is good. On two occasions the position of the camera is shifted without the audience being told of the shift. This introduces an element of confusion, and it is some time before one can again orient himself in relation to the anatomy. The film would be of particular interest to surgeons performing this type of surgery, but it would be valuable to all physicians as demonstrating the ease with which these major procedures are now being performed.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Life Insurance: Death of Insured Following Abortion.—The plaintiff, as beneficiary, sued to recover on three life insurance policies issued to the deceased by the defendant insurance company. From a judgment for the plaintiff, the defendant appealed to the court of appeal of Louisiana, Orleans.

Each policy sued on provided in effect that no benefits would be payable if the insured died as the result of a violation of the law. The death of the insured resulted from acute tetanus following a criminal abortion, to which she had voluntarily submitted.

The defendant first contended that the deceased was an accessory to the abortion, which is a crime, and that the aforementioned provisions of the policies therefore absolved it from liability. The definition of the crime of abortion as found in the Louisiana criminal code, the court said, indicates that it was the legislature's intention to make the person who feloneously administers a drug or potion or any other substance to a pregnant woman, or who uses any instrument or any other means whatsoever on a pregnant woman, for the purpose of procuring a premature delivery of the embryo or fetus, guilty of the crime of abortion. The language used in the definition is not broad enough to show an intention to include a woman who consents or submits herself to an abortion, however, even though such woman is guilty of a detestable and revolting offense against the laws of nature. The defendant is absolved from liability in this case only if an unlawful act perpetrated by the insured caused her death. If it was the intendment that the insurer would not be liable if the criminal act causing death was that of a third person, a case might arise in which an innocent policy holder, without provocation, was feloniously killed by another, in which event the insurance company would be relieved of paying the policy, as it could be said that the death arose from a criminal act, even though the insured played no part therin, except being the victim. A provision of a life insurance policy relieving the insurer from liability where death results from a violation of the law is to be given a reasonable and common sense construction. We believe, the court concluded, that the exclusion of liability clause in question was intended to apply only in cases where death resulted from a violation of the law by the insured herself.

The defendant next argued that the act causing the insured's death was of a heinous and abhorrent character and that public policy precluded insuring her against its consequences. The record does not show what relationship, if any, existed between the plaintiff and the deceased, nor is it shown that he had any knowledge of the deceased's intention to submit to the operation or played any part in it. The plaintiff, however, is the designated beneficiary and seeks the the recovery individually and for his own account. The question presented, said the court, is therefore: Should the plaintiff here, who is the named beneficiary of life insurance policies, be allowed to enforce collection of the policies where the death of the insured resulted from a criminal operation, the policies not expressly providing against the insurer's liability for death from such a cause?

It seems to be the general rule, the court of appeal said, to take into account two different classes of life insurance policies, one class being those policies made payable to the assured's estate, or to his personal representative by some appropriate designation, and the other class being those policies in which some third person is nominated and designated as beneficiary. The weight of authority appears to be to the effect that a person or his estate should not profit as a result of his own wrongdoing, and that when the maturity of an insurance contract made payable to the estate, or to the personal representative, is hastened or accelerated by his wrongdoing, even in the absence of any prohibitory clause in the contract, no recovery can be had on the policy. It is otherwise in cases involving policies in the latter class, i.e., those running in favor of third persons as beneficiaries, on the theory that the beneficiaries, having acquired a vested interest in the policies, cannot be either divested thereof or jeopardized therein, after issuance of the policies, by any wrongful act of the insured not excluded from coverage, for which they are not responsible. Even though the deceased came to her death as a result of the illegal operation for abortion to which she had voluntarily subjected herself, such submission on her part, which was reprehensible and detestable, cannot be used by the insurer as a valid defense to absolve itself from the payment of the proceeds of the policies to plaintiff, as plaintiff appears individually and as the designated beneficiary, having a vested interest in the policies. His rights as beneficiary could not be affected, and were not affected, in any way by the act of the insured, for which he was in no way responsible; there is no reason for disregarding the terms of the contract of insurance and exonerating the insurer on the grounds of public policy. Accordingly the judgment of the trial court in favor of the plaintiff was affirmed.—*Payne v. Louisiana Industrial Life Ins. Co., 33 So. (2d) 444 (La., 1948).*

Liability of Charitable Hospital for Injuries to Private Nurse.—The plaintiff sued the defendant hospital for injuries sustained by her while working as a private nurse for a patient of the defendant hospital, the injuries allegedly having been due to the negligence of an employee of the hospital. From a judgment for the plaintiff the defendant appealed to the Court of Errors and Appeals of New Jersey.

At the time of the accident the plaintiff was nursing a patient of the defendant charitable hospital, for which she was receiving $49 per week from the patient, who also paid the hospital for her meals. On Dec. 7, 1943 the plaintiff proceeded to the basement of the hospital, where the nurses' cafeteria was located; she obtained her food at the food counter and was carrying her tray from the food counter down the corridor and around a corner to the restaurant when she tripped over a pan alleged to have been placed in a negligent manner and was injured.

The question of liability of a charitable hospital to respond in damages for negligence of its servants has been many times before the courts, said the Court of Errors and Appeals. Conflict exists concerning such liability. There are two rules, the "absolute or unqualified" immunity rule and the "qualified" immunity rule, and various reasons have been given in support of each. Among those reasons are "public policy," "trust fund theory," "waiver theory" and "respondeat superior theory." The Court of Errors and Appeals then quoted from a prior New Jersey case as authority for the proposition that New Jersey follows the qualified immunity rule:

In our state we have adopted and followed what we believe to be the majority view; i.e., the public

policy theory. Thus we deny the right of recovery on the part of those who have a valid claim against a charitable institution, based on actionable negligence, but who are either the recipients of the benefactions, or the beneficiaries of the charitable institution sought to be held liable; but we permit the right of recovery against charitable institutions, for their actionable negligence, on the part of those unconcerned in and unrelated to that which the donor brought into being or supports in operation.

Therefore, said the Court of Errors and Appeals, the decision in this case comes within a narrow compass—was the respondent, a private nurse engaged for and paid by a private paying patient in a charitable hospital, a stranger to or a beneficiary of the charity?

The defendant contended that the plaintiff was in a legal sense a beneficiary of the charity. It conceded that if she was a stranger to the charity the judgment in her favor was well grounded. The argument, in brief, was that the plaintiff's association with the hospital was advantageous to her, in that she obtained employment through the nurses' registry maintained by the hospital and that the nurses' registry was maintained without cost to her, and gave her a preference in employment. This did not make her a participant in the hospital's bounty, however, concluded the court. She was paid by her patient, who also paid the hospital for her meals served while she was in attendance on the patient. While it was no doubt of advantage to the nurse to be on the registry, it was perhaps of more advantage to the hospital to have nursing service available, for it is common knowledge that in recent years hospitals have been confronted with a serious problem due to the shortage of nurses. But however this may be, the nurse in the service of the private patient was not a beneficiary of the charity in the legal sense. She therefore was an invitee of the hospital and a stranger to the charity, and the hospital owed her the duty of ordinary care in maintaining the premises in a reasonably safe condition. Accordingly the judgment in favor of the plaintiff was affirmed.—*Rose v. Raleigh Fitkin-Paul Morgan Memorial Hospital-Ann May Foundation, 57, A. (2d) 29 (N. J., 1948).*

Chiropractic Practice Acts: Validity of Annual Registration Prerequisite.—The plaintiffs filed a bill to enjoin the defendant board of chiropractic examiners from enforcing the provisions of the chiropractic practice act relating to annual registration. From a judgment dismissing their complaint, the plaintiffs appealed to the Supreme Court of Wisconsin.

The chiropractic practice act of Wisconsin requires all licentiates to renew their licenses annually and provides further that at the time of such annual renewal the applicant shall present satisfactory evidence to the board that he has, during the preceding year, attended at least one of the two day educational programs conducted, supervised and directed by the Wisconsin Chiropractic Association. The plaintiffs alleged that there are two statewide voluntary organizations in Wisconsin which licensed chiropractors may join. One is the Wisconsin Chiropractic Association and the other the Wisconsin Chiropractors Society. Each has a substantial membership and each provides an annual educational program. The Wisconsin Chiropractic Association requires a fee of $10 from each person who attends its annual educational program, which is the program a chiropractor must attend in order to have his annual license renewed. It is alleged that the statute does not authorize the charging of any fee and certainly not a fee in excess of the cost, which it is claimed this fee is. The plaintiffs state that they are ready and willing to pay the annual fee of $5 to the state for renewal of their licenses but claim that the portion of the statute which requires annual attendance at the educational program provided in the statute in order to have their licenses renewed is in violation of their constitutional rights and deprives them as citizens of their rights and property without due process of law.

The state has the power, said the Supreme Court, to provide for the general welfare of its people and in so doing to prescribe reasonable qualifications to be complied with before a person may engage in or carry on any trade or profession. The fact that a person is once licensed does not create a vested property right in the licensee, as advancements in the trade or profession may require additional conditions to be complied with if the general welfare of the public is to be protected.

The respondents argued that the legislature has the right to decide whether advancements in their profession require those engaged in its practice to attend educational programs in order to continue practicing. To this we agree, said the Supreme Court. If the legislature had provided that any chiropractor desiring to have his annual license renewed must attend an educational program approved by the state board of examiners in chiropractic we would have no difficulty with it, or if the legislature had adopted a standard which the program must meet it could well be argued that this would be sufficient. The statute in question goes far beyond this, said the Supreme Court. It provides who shall give the educational program that must be attended and gives them complete control of the nature of the program. Respondent would not argue that the legislature may require a person to be a graduate of one certain medical school in Wisconsin or one certain dental school in Wisconsin in order to be able to obtain a license to practice his profession in this state. This statute comparatively so provides. It provides where he must take limited postgraduate work each year if his license to practice is to be renewed. It requires the licensee each year to attend one day of the educational program provided by the Wisconsin Chiropractic Association, a voluntary organization not primarily engaged in the educational field. We do not mean to indicate that the program offered is not an excellent program and well worth attendance by every member of the profession. The difficulty is that the legislature has fixed no standard of a program which must be attended nor has it delegated to any board the authority to approve the program to be offered. It has merely provided by whom the program shall be given. In a California case, where the statute provided that the state board of medical examiners should be elected from three certain medical societies, while upholding the statute the court said it "could not be upheld at all if it were put upon the ground that in so doing the state is acting for the benefit of any one of all of the medical societies or schools of medicine existing in the state." We conclude, said the Supreme Court, that the state here was acting for the benefit of the association primarily, which is not within the legitimate exercise of police power. Accordingly the judgment of dismissal was reversed and the cause remanded with directions to enter judgment in favor of the plaintiffs.—*State ex rel. Week v. Wisconsin State Board of Examiners in Chiropractic, 30 N. W. (2d) 187 (Wis., 1947).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore
47:1-134 (Jan.) 1948. Partial Index

Mechanics of Droplet Nuclei Infection. W. F. Wells. -p. 1.
*Treatment of Head Lice with MYL and DDT Louse Powders and NBIN Emulsion. G. W. Eddy. -p. 29.
Control of Schistosomiasis Japonica. W.H. Wright, P.M. Bauman and N. Fry. -p. 33.
Observations on Safety of Multiple Antigen Preparations. V. K. Volk. -p. 53.
Vaccination Against Q Fever. J. E. Smadel, M. J. Snyder and F. C. Robbins. -p. 71.
Survival of Virus of Common Cold in Specimens Collected from Naturally Acquired Cases of Common Cold. M. Pollard, C. U. Dernehl and C. D. Caplovitz. -p. 103.

Treatment of Head Lice.—Eddy reviews observations in over 1,000 natural infestations of head lice treated during 1944 and 1945 in Illinois and Indiana with three pediculicidal preparations, all of which had been adopted by the army during the war. Most of the persons treated were school children, but many parents and children under school age were also treated. The MYL formula is composed of 0.2 per cent pyrethrins (from a 20 per cent concentrate), 2 per cent N-isobutylundecylenamide (IN-930), 2 per cent 2,4-dinitroanisole and 0.25 per cent "phenol S" (a mixture of isopropyl and diisopropyl cresols) in pyrophyllite. The DDT powder contains 10 per cent of DDT in pyrophyllite. The NBIN emulsion is prepared from a concentrate containing 68 per cent of benzyl benzoate, 14 per cent of Tween 80 (polyoxyalkylene ether of sorbitan mono-oleate), 12 per cent of ethyl aminobenzoate and 6 per cent of DDT. One part of the concentrate is diluted with 5 parts of water before using. All the persons treated were infested with either lice or eggs. Before treatment only 20 of the 222 persons treated with the MYL powder were found to harbor lice; 63 of the 178 treated with the DDT powder had active forms present; and 171 of the 636 treated with the NBIN emulsion were found to be infested with lice. Probably motile forms were present in many instances but were not detected. On examination eight to ten days later no live lice were found following the use of DDT or NBIN, but on 3 persons treated with MYL live lice were present. The MYL powder cannot be depended on in all instances to give complete control in one application.

American Journal of Tropical Medicine, Baltimore
28:1-174 (Jan.) 1948. Partial Index

Immunization of Monkeys Against Malaria by Means of Killed Parasites with Adjuvants. J. Freund, K. J. Thomson, Harriet E. Sommer and others. -p. 1.
*Efficacy of Chloroquine, Quinacrine, Quinine and Totaquine in Treatment of Plasmodium Malariae Infections (Quartan Malaria). M.D. Young and D.E. Eyles. -p. 23.
Homogeneity or Heterogeneity of Plasmodium Vivax Infections Acquired in Highly Endemic Regions. M.F. Boyd and S.F. Kitchen. -p. 29.
*Transmission of Wuchereria Bancrofti by Anopheles Darlingi in the American Tropics. G. Giglioli. -p. 71.
Studies on Cyclic Passage of Yellow Fever Virus in South American Mammals and Mosquitoes. IV. Marsupials (Metachirus Nudicaudatus and Marmosa) in Combination with Aedes Aegypti as Vector. Mary B. Waddell and R. M. Taylor. -p. 87.
Chloroquine in Amebiasis. N. J. Conan Jr. -p. 107.
Protein Hydrolysate-Enriched Media for Propagation of Trichomonas Vaginalis (Donné). J. J. Lash. -p. 111.
Conditions for Drug Testing in Experimental Schistosomiasis Mansoni in Mice. M. Schubert. -p. 121.
Typhus in Colombia: Survey of Four Towns by Complement Fixation Test. November 1946. J. A. Montoya, P. P. Osejo and N. H. Topping. -p. 163.

Efficacy of Chemotherapy in Quartan Malaria.—Young and Eyles point out that because of its low prevalence in most parts of the world and because of its being less dramatic than the other forms of malaria, infection due to Plasmodium malariae, or quartan malaria, has received less attention in experimental chemotherapy. The general impression seems to be that the parasites of P. malariae in the peripheral blood stream tend to resist the action of drugs longer than the other malarial parasites. The object of the present report is to compare the effects of quinacrine hydrochloride ("atabrine"), quinine sulfate, totaquine and a newer drug, chloroquine (SN 7618: 7-chloro-4-[4-diethylamino-1-methylbutylamino] quinoline), on this species of malarial parasite. Infections were induced by injections of malaria-infected blood into 79 neurosyphilitic patients. The authors then tested the efficacy of chloroquine, quinacrine, quinine and totaquine. Chloroquine gave the best results. Quinacrine was better than quinine. Totaquine gave the poorest results. P. malariae responded relatively slowly to all the drugs tested. Using chloroquine regimens, patients were fully cleared of P. vivax in the peripheral blood much faster than of P. malariae, even though the densities of the P. vivax parasites were several times greater at the beginning of treatment.

Transmission of Wuchereria Bancrofti.—Giglioli says that in a recent study of the house-frequenting habits of the mosquitoes of the coastland of British Guiana it was found that only three of the many species inhabiting this region can be regarded as habitual house frequenters and man biters. These are Culex fatigans, Anopheles darlingi and Aedes aegypti. The work here reported was undertaken to establish the relative roles of these three species in the transmission of Wuchereria bancrofti. A. darlingi is just as suitable a host for Wuchereria as C. fatigans, its classic vector; the specific anthropophilic feeding habits which cause A. darlingi to be the most effective malaria carrier of Equatorial America obviously also make this mosquito a particularly dangerous vector of filariasis. Attempts to infect Aedes aegypti experimentally failed entirely, and the negative role of this species in the transmission of Wuchereria was confirmed.

Bulletin of John Hopkins Hospital, Baltimore
82:81-356 (Feb.) 1948 Partial Index

Studies on Physiology, Biochemistry, and Cytopathology of Cornea in Relation to Injury by Mustard Gas and Allied Toxic Agents: I. Introduction and Outline. J.S. Friedenwald and A.C. Woods. -p. 81.
Primary Reaction of Mustard with Corneal Epithelium. J.S. Friedenwald, R.O. Scholz, A. Snell Jr. and Sylvia G. Moses. -p. 102.
Histopathology of Ocular Lesions Produced by Sulfur and Nitrogen Mustards. A.E. Maumenee and R.O. Scholz. -p. 121.
Effects of Mustard and Nitrogen Mustard on Mitotic and Wound Healing Activities of Corneal Epithelium.

J.S. Friedenwald, W. Buschke and R.O. Scholz. -p. 148.
Effect of Histamine and Related Substances on Cohesion of Corneal Epithelium. H. Herrmann. -p. 208.
Loosening of Corneal Epithelium After Exposure to Mustard. H. Herrmann and Fay H. Hickman. -p. 213.
Studies on Non-Protein Nitrogen in Cornea. H. Herrmann and Sylvia G. Moses. -p. 295.
Comparison of Effects of Mustard, Ultraviolet and X-Radiation, and Colchicine on Cornea. J.S. Friedenwald, W. Buschke and Sylvia G. Moses. -p. 312.
Summary and Some Possible Interpretations. J.S. Friedenwald. -p. 326.

Cancer Research, Baltimore
7:321-416 (June) 1947. Partial Index

Changes in Reducing Power of Serum or Plasma of Patients with Malignant Neoplastic Disease. M.M. Black. -p. 321.
Activity of Catheptic Enzymes in p-Dimethylaminoazobenzene Hepatomas. P.C. Zamecnik and M.L. Stephenson. -p. 326.
Studies in Carcinogenesis with Azo Compounds: III. Action of (A) Four Azo Compounds in Wistar Rats Fed Restricted Diets; (B) N,N-Diethyl-p-Aminoazobenzene in Mice. A.H.M. Kirby. -p. 333.
Tumor of Lung in Rats Following Injections of Urethane (Ethyl Carbamate). M.F. Guyer and P.E. Claus. -p. 342.
Anlage Tumors of Salivary Glands. B. Halpert and C.D. Tool. -p. 346.
Changing Cancer Death Rate. Evelyn A. Potter. -p. 351.
Germinoma of the Pineal: Its Identity with Germinoma (" Seminoma") of Testis. N.B. Friedman. -p. 363.
*Therapeutic Use of Antireticular Cytotoxic Serum (A.C.S.) in Hodgkin's Disease. J. Skapier. -p. 369.
Effect of Ultraviolet Irradiation on Carcinogenic Potency of Certain Hydrocarbons. J. Egelbreth-Holm and S. Iversen. -p. 372.
Failure of Hyaluronidase to Increase Invasiveness of Neoplasms. D.R. Coman, M. McCutcheon and I. Zeidman. -p. 383.
*Apparent Anticarcinogenic Action of Lanolin. I. Berenblum and R. Schoental. -p. 390.

Antireticular Cytotoxic Serum in Hodgkin's Disease.—The study which Skapier undertook was to determine the therapeutic value, if any, of antireticular cytotoxic serum (A.C.S.) in a disease specifically involving the reticuloendothelial system, such as Hodgkin's lymphogranuloma, which is regarded as a malignant type of reticuloendotheliosis of unknown causation. Antireticular cytotoxic serum was used in the treatment of 22 selected patients with Hodgkin's disease, but it did not prove to be a curative agent in this disease. However, the majority of the patients treated showed improvement in the general condition, such as gain in body weight, favorable changes in the sedimentation rate and blood morphology. The author thinks that antireticular cytotoxic serum may be considered a valuable adjunct to other accepted methods of therapy in the treatment of Hodgkin's disease.

Apparent Anticarcinogenic Action of Lanolin.—Berenblum and Schoental point out that because some investigators observed that addition of wool fat (anhydrous lanolin) to oils or tars often led to a reduction in their neoplastic response, the use of this agent was recommended as a preventive against occupational cancer. The authors made further investigations on this problem and were able to confirm the striking diminution in the carcinogenic potency of methylcholanthrene, which occurs when wool fat is used as the diluent. This was found to operate also in connection with another carcinogen 9,10-dimethyl-1,2-benzanthracene. In both cases, however, the inhibitory effect was completely nullified when the concentration of the carcinogen was raised. Furthermore, in the lower concentrations, analogous diminution in carcinogenic potency was obtained by substituting liquid paraffin for wool fat as diluent. These results are incompatible with the idea that the inhibitory effect of the latter constitutes a specific anticarcinogenic action. They are readily accounted for on grounds of inadequate concentration. In view of this, the use of wool fat as a preventive measure against occupational cancer would seem to be of doubtful value.

Cincinnati Journal of Medicine
29:1-76 (Jan.) 1948

Diagnosis and Treatment of Brucellosis W. W. Spink. -p. 1.
Student and His Role in Medical Education. C. D. Aring. -p. 15.

29:77-142 (Feb.) 1948

Role of Practicing Physician in Prevention of Disease with Particular Reference to Ten Point Program of Academy of Medicine. T.J. LeBlanc. -p. 77.
Carcinoma of Large Intestine. L. J. Szary. -p. 97.

Journal of Bone and Joint Surgery, Boston
30-A:1-262 (Jan.) 1948. Partial Index

Mechanism and Treatment of Fractures of Calcaneus: Open Reduction with Use of Cancellous Grafts. I. Palmer. —p. 2.
Slipped Epiphysis in Adolescent Hip: Reconsideration of Open Reduction. P.H. Martin.—p. 9.
Operative Therapy for Slipped Upper Femoral Epiphysis: End-Result Study. C.E. Badgley, A.S. Isaacson, J.C. Wolgamot and J.W. Miller.—p. 19.
Summary of Results of Bone Grafting for War Injuries. R.C. Farrow.—p. 31.
Internal Contact Splint. G.W.N. Eggers.—p. 40.
Experimental Study of Fracture Sites. W.H. Ainsworth and N.E. Wright.—p. 48.
*Anatomic Study of Mechanics, Pathology and Healing of Fracture of Femoral Neck: Preliminary Report. A. Farkas, M.J. Wilson and J.C. Hayner.—p. 53.
Homografts in Orthopedic Surgery. M.O. Henry.—p. 70.
*Mechanism of Injury and Distribution of 3,000 Fractures and Dislocations Caused by Parachute Jumping. R. Ciccone and R.M. Richman.—p. 77.
Styloidectomy of Radius in Surgical Treatment of Non-Union of Carpal Navicular: Preliminary Report. L. Barnard and S.G. Stubbins.—p. 98.
Disturbance of Longitudinal Growth Associated with Prolonged Disability of Lower Extremity. D. Ross. —p. 103.
Hypermobile Flat Foot with Short Tendo Achillis. R.I. Harris and T. Beath.—p. 116.
Structural Patterns of Callus in Fractures of Long Bones. I. With Reference to Healing After Internal Fixation. E.M. Bick.—p. 141.
Cyst-Like Lesions of Carpal Bones, Associated with Ununited Fractures, Aseptic Necrosis, and Traumatic Arthritis. A.K. Rodholm and D.B. Phemister.—p. 151
Plastic Repair of Extremities by Non-Tubulated Pedicle Skin Flaps. J.M. Converse.—p. 163.
Formation of New Bursae with Cellophane. C.L. Wilson. —p. 195.
Interinnomino-Abdominal Amputations: Report of 12 Cases. N.R. Beck and W.H. Bickel.—p. 201.
Resection of Obturator Nerve for Relief of Pain in Arthritis of Hip Joint. E.B. Kaplan.—p. 213.

Fracture of the Femoral Neck.—Dissection and roentgenographic analysis of the upper portion of the shaft and neck of the femur revealed to Farkas and his associates a highly independent laminar bony system, which begins from 2 to 4 cm. below the lesser trochanter and ends in fanlike fashion at the cartilaginous plate of the head. This proved to be the internal weight-bearing system of the proximal portion of the femur. This system undergoes slow resorption in its distal portion after middle age, but it never disappears. On the roentgenogram it can be seen throughout life from its distal to its proximal end. Microscopically, it consists of a great number of laminas and bone cells, and a rich endosteal lining; hence the speed with which it is capable of new bone formation. Mechanically, the internal weight-bearing system is a compression system, and during weight bearing it is to be found almost in the vertical plane. Preceding adduction fractures, the internal weight-bearing system is resorbed and replaced by cortical bone in its entire distal portion. Its proximal end remains spongy, with laminar character. The separation occurs at the site where the spongy proximal portion begins and the distal cortical portion ends.

In abduction fractures the internal weight-bearing system suffers only trauma, but otherwise it is strong. This explains the rapid healing of such fractures. On the basis of the anatomy and pathology of the femoral neck, two types of fracture may be distinguished: (1) compression fractures, comprising the abduction, intermedial and adduction fractures, and (2) subcapital separations, represented by most fractures of the aged. The prognosis of the compression fractures is good, if the fragments are kept in good apposition and fixation in plaster, in Russell traction or by nailing. For the treatment of the adduction fractures, a method with a perforated (sieve) sublay graft has been developed.

Fractures and Dislocations Caused by Parachute Jumping.—This survey by Ciccone and Richman describes 3,000 fractures and major injuries to soft tissue as the result of parachute jumping, with particular reference to the traumatic mechanisms involved. Almost all injuries involve weight-bearing structures and can be attributed to four basic traumatic mechanisms: (1) Torsion plus landing thrust; this is by far the most common mechanism of injury and is responsible for a chain of related injuries, extending from the toes to the hip. (2) Backward landing; vertebral compression fractures and head injuries characterize this mechanism of injury. (3) "Opening shock" is a mechanism of injury peculiar to parachute jumping. The violent abduction stress causes many ligamentous tears and even fractures of the extremeties. (4) Violent vertical landings, occasional parachute malfunctions increase the landing impact and cause severe multiple fractures of the legs and spine. One half of all parachute fractures involve the ankle mortise. The most prevalent mechanism of injury is external rotation, which, together with abduction, accounts for approximately 75 per cent of fractures at the ankle. The entire lower extremity shows a preponderence of external-rotation injuries. This would imply a structural weakness of the limb as a whole,—a lack of adaptive resiliency to the stress of external torsion. A classification of fractures based on etiologic stresses is more useful than one based on anatomic location. Recognition of the etiologic stresses provides a rational approach to treatment.

Diseases of Chest, Chicago

14: 1-160 (Jan.-Feb.) 1948

*Tuberculosis of Trachea and Major Bronchi. H. C. Sweany and H. Behm.—p. 1.
Studies of Venous Pressure, Vital Capacity, Circulation Times and Electrocardiograms in Course of Pulmonary Collapse Therapy. J. P. Levinson, D. M. Caldwell, L. H. Hetherington and C. H. Marcy.—p. 19.
Right Heart Failure After Thoracoplasty. A. Hurst and H. M. Maier.—p. 29.
*Synergism Between Mycotic and Tuberculous Infections of Lungs. A. E. Greer.—p. 33.
Multiple Simultaneous Acute Putrid Lung Abscesses. A. H. Aufses.—p. 41.
Tuberculosis in Pediatric Practice. L. F. Hill.—p. 46.
*Silicosis as Industrial and Compensation Problem in British Columbia. C. H. Vrooman.—p. 63.
Pneumococcus Pneumonia and Its Complications. E. L. Bruck.—p. 73.
Lung Abscess (Surgical Aspects). P. C. Samson.—p. 79.
Bronchiectasis. J. J. Singer.—p. 92.
Calcium Ribonate and Vitamin C (Nu 240-10) in Treatment of Tuberculosis. J. B. Andosca and J. A. Foley.—p. 107.
Cystic Disease of Lung with Report of Case. P. A. Theodos.—p. 115.
Legislative Implications of Adequate Tuberculosis Control. J. W. Laws.—p. 121.
Necropsy Incidence of Tuberculosis in Hospital for Mentally Ill. T. J. Moran.—p. 132.

Tuberculosis of Trachea and Bronchi.—Sweany and Behm say that with the increase in the use of the bronchoscope many hitherto unsuspected cases of tracheobronchial tuberculosis have been discovered in patients previously thought to have only pulmonary tuberculosis. Notwithstanding the importance of bronchoscopy, it has been necessary to resort to postmortem examination to determine the large incidence of these complications. This report involves the analysis of 667 necropsy specimens of pulmonary tuberculosis in which the trachea and the main bronchi were systematically studied. Gross evidence of tuberculosis was found in 377 cases (56.5 per cent). Microscopic study of a sample of grossly negative specimens gave an estimated figure of 37.5 per cent of lesions in the remaining 290 cases, thereby increasing the positive findings of all cases to 72 per cent. The incidence was increased in the young age groups and in the female sex. The pathogenesis seemed to be best explained by a direct implantation of bacilli in the mucous glands, or through breaches in the epithelium. The location of lesions in the tracheobronchial tree was more or less random, although points of stress (larynx), posterior aspects of the tracheobronchial tree and areas in proximity to cavities seemed to be affected most. The nature of the involvement was diffuse superficial infiltration in 12 cases; diffuse and deep infiltration and ulceration in 85 cases; circumscribed ulceration in 265 cases; fibroid stenosis in 5 cases; perforation in 6 cases, and caseous bronchitis in 4 cases. The hope for the future of tuberculous tracheobronchitis seems to be for early bronchoscopic study of all cases, early diagnosis and early treatment in positive cases by thoracoplasty or streptomycin, or both.

Synergism Between Mycotic and Tuberculous Infections of Lungs.—Greer aims to refute the impression that coexisting fungi are harmless saprophytic invaders and to advance added data to support the premise that an infection of the lungs with pathogenic fungi in association with a tuberculous infection of the lungs is not harmless and coincidental, but that it definitely increases the activity and virulence of the tuberculous process. He discusses the commensal relationship between fungus and tuberculous infections of the lungs. The coexistence of these two infections produces a more rapidly fatal issue in tuberculous persons than one should expect from the duration of the disease process in the lungs. Fungi from the expectorated sputum are usually saprophytic. It is best to obtain the sputum specimens by intratracheal aspiration and to subject the fungus to animal inoculation if there is any doubt regarding its pathogenicity. Physicians should search diligently for coexisting pathogenic fungi in every tuberculous patient whose clinical course is unusually rapid or prone to relapse. In 5 among several hundred patients in whom tuberculosis had been diagnosed clinically the author found pathogenic fungi in the tracheal secretions, although tubercle bacilli were never recovered from these 5 patients. The mycelial fungi are found more frequently than yeastlike fungi as the etiologic agents of pulmonary mycoses associated with pulmonary tuberculosis. All ideas dealing with the cooperative relationship between the tubercle bacilli and fungi existing together in diseased tissuee are highly speculative, as little, if anything, is known regarding such interacting

or interplaying processes. The investigations reported here would suggest that the association of a fungous infection of the lungs in a patient having pulmonary tuberculosis would augment and accelerate the activity of the tubercle bacilli either directly or by lowering the vitality and resistance of the patient.

Silicosis in British Columbia.—Vrooman says that in 1935 a survey was made of five of the leading metalliferous mines to obtain a cross section of the prevalence of silicosis. Of those examined, the total number of miners who had worked five years or more underground was 703. Of that number 105 had silicosis. Nearly two thirds of these had the first stage of silicosis, and the others showed signs of disability. Following this survey, silicosis was made a compensable disease. It was made compulsory for mine owners to have their underground employees given a yearly examination with roentgenogram of the chest. These examinations are made by the mine physicians. The examination forms and roentgenograms are forwarded to the Workmen's Compensation Board and reviewed there by the silicosis referee, who may cancel or reissue any certificate if he considers it advisable. The policy is that all patients with suspected active tuberculosis shall be excluded. Those whose silicosis shows progression or is complicated by tuberculosis are advised to apply for compensation, and they are removed from underground work. Those with early silicosis which is not showing progression, especially the older men, are issued certificates if they wish to continue to work underground. The disease of these patients does not progress much faster if they were allowed to remain at the work to which they are accustomed than if they are removed. It is an economic disaster to remove men from work they have been doing for fifteen or twenty years and ask them to make a living at something else. Most of the mines of British Columbia are now reasonably safe. In September 1937 the Workmen's Compensation Board appointed a competent dust inspector to visit the mines at regular intervals and to make dust counts and recommendations regarding improvement of ventilation.

Journal of Neurophysiology, Springfield, Ill.

11:1-56 (Jan.) 1948

Total and Free Acetylcholine in Rat Peripheral Nerves. Marina Prajmovsky and J.H. Welsh.—p. 1.
Absence of Spinal Cord Regeneration in Cat. L.M. Davidoff and J. Ransohoff.—p. 9.
Cingular Gyrus: Area 24. A.A. Ward Jr.—p. 13.
Phasic Inhibition of Light Reflex of Pupil During Retinal Rivalry. E.H. Bárány and U. Hallden.—p. 25.
Occipital Alpha Rhythm: Study of Phase Variations. R. Cohn.—p. 31.
Some Respiratory, Vascular and Thermal Responses to Stimulation of Orbital Surface of Frontal Lobe. J.M.R. Delgado and R.B. Livingston.—p. 39.

Journal of Neurosurgery, Springfield, Ill.

5:1-106 (Jan.) 1948. **Partial Index**

*Observations on Standardizing Surgical Management of Intracranial Suppuration. E. S. Gurdjian and J. E. Webster.—p. 1.
Faulty Sensory Localization in Nerve Regeneration: Index of Functional Recovery Following Suture. G. L. Hawkins.—p. 11.
Cranioplasty and Post-Traumatic Syndrome. E. G. Grantham and H. P. Landis.—p. 19.
*Residual Sympathetic Pathways After Paravertebral Sympathectomy. B. S. Ray and A. D. Console.—p. 23.
Upward Transtentorial Herniation of Brain Stem and Cerebellum Due to Tumor of Posterior Fossa. With Special Note on Tumors of Acoustic Nerve. A. Ecker.—p. 51.
Nerve Regeneration: Comparative Experimental Study Following Suture by Clot and Thread. I. M. Tarlov and W. Boernstein.—p. 62.

Surgical Management of Intracranial Suppuration.—Since penicillin and sulfonamide drugs have been used for treatment, Gurdjian and Webster have treated by operation 15 patients with intracranial suppuration. These included 1 left frontal extradural abscess, 3 subdural abscesses, 11 cerebral abscesses and 2 cerebellar abscesses. One instance of cerebral abscess was associated with subdural suppuration. Most of these patients had a history of infection of 1 month's duration or longer. The analysis of the records of these patients has emphasized the desirability of a step by step plan of surgical management for intracranial suppuration. Such a plan employs the simplest surgical procedure first. This consists of tapping the abscess and the instillation of penicillin. Time is allowed for resistance of the host to develop. Repeated tapping is usually required. If tapping and instillation of penicillin are not successful, excision of the abscess can be undertaken. Ventriculography may be used to localize the extent of the purulent mass. Excision of the abscess can then be done through an appropriate osteoplastic craniotomy. In the presence of a subdural abscess the plan of multiple trephine openings, exploring the cerebral surface bilaterally, is successful. Penicillin may be instilled through a rubber catheter. After the injection the tube is removed. If a cure appears to be effected, a pneumoencephalogram before discharge from the hospital should rule out any remaining focus and particularly a latent associated cerebral abscess. The wounds may be reopened for inspection of the subdural space and instillation of penicillin.

Residual Sympathetic Pathways After Paravertebral Sympathectomy.—Ray and Console designed a simple dermometer for their studies on skin resistance. They conclude that after excision of the paravertebral ganglionated chain, regardless of the extent of the excision, residual sympathetic pathways to the lower extremity remain. These pathways do not pass through the paravertebral sympathetic chain. Sympathetic activity is present in all patients in the twelfth thoracic to the third lumbar dermatomes after standard sympathectomies and may be interrupted by anterior rhizotomy, spinal anesthesia, tetraethylammonium and procaine block or division of the lumbar nerves. There may be similar pathways distributed to the face, the lower sacral dermatomes, the axilla and first and second thoracic dermatomes, and scattered areas on the trunk. After paravertebral sympathectomy these pathways become manifest only after a process of readjustment takes place. An incomplete denervation may therefore mimic complete denervation for a period up to three months. Returning sympathetic activity within this period is due to readjustment. Later return may be due to the same mechanism, to invasion by fibers from adjacent areas not denervated or to regeneration. It is doubtful if any of the present methods of sympathectomy result in a complete interruption of sympathetic pathways. Long-lasting sympathetic denervation of a part of the body may require complete denervation of not only the desired area but the adjacent areas.

Kansas Medical Society Journal, Topeka

49:1-52 (Jan.) 1948

Present Status of Surgical Treatment of Duodenal Ulcer. E.S. Judd Jr.—p. 1.
Stilbestrol Medication. R.L. Newman.—p. 10.
Digitalis Glycosides, Ouabain and Strophanthin in General Practice. J.D. Rising.—p. 14.
Mass Chest Survey at University of Kansas Medical Center Out-Patient Dispensary. J.W. Burnett and G.M. Tice.—p. 19.

49:53-92 (Feb.) 1948

*Pitfalls in Treatment of Diabetic Coma. A. Marble.—p. 53.
Surgery of Pancreatic Cysts. W.M. Mills and D.C. Wakeman.—p. 57.
Affinity of Nerve Fiber for Tetanus Toxin. P.G. Roofe.—p. 60.
Different Type of Stomach Tube. C.Y. Thomas Jr.—p. 62.

Treatment of Diabetic Coma.—Marble shows that it is the careless patient, the patient with poorly controlled diabetes, in whom diabetic coma is most likely to develop. This indicates the importance of education of the patient and his family with regard to the disease. Patients make errors which may precipitate diabetic coma. Even well trained patients omit insulin during times of acute illness when food intake is scant. The patient, fearing hypoglycemia, reasons: "If I don't eat, I should not take insulin." The result is increasing hyperglycemia with the development of acidosis and eventual coma. Patients must be made to understand that in acute illness insulin must be continued, and if the illness is accompanied by fever an even greater dose of the drug may be necessary. The most treacherous pitfall in the treatment of diabetic coma is the danger of giving too little insulin, because of an unwarranted fear of hypoglycemia. As soon as the diagnosis is made, a preliminary large dose of unmodified insulin, at least 50 units and in most patients 100 units, should be given subcutaneously. A second common pitfall is the danger of not replacing adequately the fluid and electrolytes lost by diuresis and vomiting. Administration of dextrose during the first few hours of treatment is regarded by the author as another pitfall. He lists reasons why the use of dextrose parenterally during the first few hours has no place in treatment. When consciousness has been regained and an hour or two after vomiting has subsided, fluids by mouth should be begun. After preliminary trials with water, warm broths, thin gruel, tea with sugar, orange juice and ginger ale should be given at a rate of 100 to 150 cc. an hour. After the initial large dose of insulin has had the desired effect, further administration of insulin may be made, at first hourly and later at two, three or four hour intervals, according to the results of the Benedict test for sugar in urine. Within eighteen to twenty-four hours, a soft solid diet may be begun and use of protamine zinc insulin started.

Missouri State Medical Assn. Journal, St. Louis

45:73-168 (Feb.) 1948

Symposium on Industrial Health

Medical Profession's Responsibility in Improvement of Industrial Health. H. A. Sutter. -p. 89.
Industrial Dermatoses and the Economic Import. E. P. Monahan. -p. 91.
Organization of an Industrial Medical Department. H. E. Kelly. -p. 94.
The Plant Physician and His Industrial Preventive Medical Program Utilizing Industrial Hygiene Services of the Public Health Department. H. M. Brown and B. W. Lewis. -p. 98.
National and State Industrial Health Program. W. S. Johnson. -p. 101.
Importance of Industrial Health to the Nation. H. Strong. -p. 109.

New York State Journal of Medicine, New York

48:225-336 (Feb. 1) 1948

*Treatment of Poliomyelitis in Acute and Convalescent Stages. Physical Therapy and Orthopedic Considerations. A. D. Gurewitsch, H. Hallock and H. J. Dugan. -p. 267.
Effect of Drilling Neck of Femur in Legg-Perthes' Disease. I. Zadek and G. D. B. Berkett. -p. 273.
Periarteritis Nodosa-Like Lesions in Tuberculosis Meningitis. M. G. Bohrod. -p. 275.
Criteria of Healing in Fractures Following Internal Fixation. E. M. Bick. -p. 277.
Untoward Effects of Newer Drugs. J. H. Talbott. -p. 280.
Occurrence of Water-Soluble RH Substances in Body Secretions. J. F. Mohn and E. Witebsky. -p. 287.
Prothrombin Time in Rheumatoid Arthritis. L. W. Granirer. -p. 291.
Oxytocic Use of Methergine in Third Stage of Labor. J. E. Tritsch, E. Schneider and E. F. Longworth. -p. 293.
Intracutaneous Influenza Vaccination. H. Vollmer. -p. 295.
Pediatric Approach to Management of Allergic Eczema in Children. B. Ratner. -p. 296.
Improved Device for Extensive ECG Exploration of Chest. H. R. Miller. -p. 300.
*Hiatus Hernia Confused with Coronary Thrombosis. G. C. Linn. -p. 303.

Treatment of Poliomyelitis.—This discussion by Gurewitsch and his associates is based on the study of 552 paralytic patients in the acute and early convalescent stages who were treated from 1942 through 1946 at the New York State Reconstruction Home. Spontaneous pain can be eliminated by proper positioning of the patient and by measures of support. Pain on squeezing and on motion of a joint is best treated with moist heat. The authors have been prescribing hot packs extensively. Passive exercises to all joints are started from admission of the patient. With gradually subsiding pain the vigor of the passive motion is increased. Muscular reeducation should be graded carefully, and care should be taken to avoid exhaustion of a weak muscle. Ambulation is allowed as soon as it is considered that the upright posture and the effort of walking will not affect recovering muscles unfavorably. At first patients are placed on their feet in warm water up to the neck. This eliminates gravity and stimulates a multitude of postural reflexes without fatiguing muscles by weight bearing. By gradually reducing the level of the water, the amount of weight bearing is graded. Functional occupational therapy, given for the double purpose of recreation and training of muscles and skills, is used extensively in this phase. If deformities occur or increase in spite of the early application of heat and stretching, they must be corrected by methods of traction, wedging or turnbuckle casts. If deformities develop and will not yield to conservative means of therapy, surgical correction will be necessary.

Hiatus Hernia Confused with Coronary Thrombosis.—Linn reports 3 cases of hiatus hernia which were originally diagnosed as coronary thrombosis. These cases demonstrate that hiatus hernia may mimic angina pectoris and coronary thrombosis. The serious prognostic outlook in coronary thrombosis or angina pectoris makes it important that the true cause for thoracic pain be ascertained. The pain of hiatus hernia is probably initiated over the visceral afferent fibers that supply the esophagus and cardiac portion of the stomach or over the sensory afferent fibers from the diaphragm, contained in the phrenic, middle or lower thoracic nerves; thus, the pain is referred to the same segments as is cardiac pain. Overdistention or irritation of the herniated portion of the stomach may be responsible for the production of the anginal or coronary type of pain. It is important to remember that the angina-like pain of hiatus hernia is more apt to be associated with eating than with effort. The patient usually complains of a good deal of eructation and feels better when he is up and around.

North Carolina Medical Journal, Winston-Salem
9:1-60 (Jan.) 1948

Some Problems of Rural General Practitioner. B. B. Dalton. -p. 1.
Integration of Public Health Program With Preventive Aspects of Private Practice. G. T. Harrell. -P. 4.
Early Diagnosis of Uterine Malignancy. T. L. Lee and H. F. Fuller. -p. 9.
Use of Vaginal Smears in Diagnosis of Genital Cancer. J. R. Kernodle, W. K. Cuyler and W. L. Thomas.-p. 11.
Cellular Changes in Carcinoma of Prostate Following Hormonal Therapy. G. G. Gilbert. -p. 19.
*Granuloma Inguinale Treated with Streptomycin: Report of Case. S. Olansky, J. Farrington and Kathleen A. Riley. -p. 21.
Fluorine and Prevention of Dental Caries. Z. M. Stadt. -p. 23.
Routine Blood Cultures in Pediatrics. E. S. King. -p.30.
Atlantocranial Dislocation with Survival: Case Report J. W. Farthing. -p. 34.

Streptomycin in Granuloma Inguinale.—Olansky, Farrington and Riley say that although antimony compounds have been effective in the treatment of granuloma inguinale, adequate treatment with these drugs is difficult because of the long periods of time required and the toxic reactions which sometimes develop. The authors report the case of a Negro whose inguinal lymph nodes enlarged and broke down some months after he had had a "sore" on the glans penis. The serologic test for syphilis and the Frei and Ducrey tests for venereal lymphogranuloma were negative, but scrapings from the inguinal lesions showed Donovan bodies. The patient received an antimony preparation intravenously at irregular intervals, but the lesions became more extensive until he became incapacitated and was hospitalized. Streptomycin therapy in doses of 0.6 Gm. intramuscularly every four hours was started immediately. A total dosage of 32.4 Gm. was given. Continuous compresses of potassium permanganate in a dilution of 1:4,000 were applied to the lesions. On the third day of streptomycin therapy repeated smears for Donovan bodies showed diminution in their number. After the fifth day, no Donovan bodies could be demonstrated. When he was discharged the lesions were less tender and acute; beginning epithelization was visible. About a month later, he returned to the outpatient clinic remarkably improved. There was 75 per cent epithelization of the lesions, and the patient was comfortable enough to resume work. It is hoped that the treatment of additional cases by this method will prove that the initial good results are permanent.

Philippine Medical Association Journal, Manila
23:585-644 (Dec.) 1947 Partial Index

*Treatment of Herpes Zoster with Cobra Venom and Sulfanilamide. M. G. Tan and Antonia R. Ines-Tan. -p. 593.

Cobra Venom and Sulfanilamide in Herpes Zoster.—Tan and Ines-Tan used cobra venom and sulfanilamide in the treatment of 5 patients with herpes zoster. The initial dose of 1 cc. of the 1:10,000 dilution of cobra venom gave no relief, but the second dose of 1 cc. in the 1:5,000 dilution decreased the intense burning and itching pain in 2 of the patients. Complete relief from pain was obtained by a third dose (1:5,000) in 4 of the patients, whereas the other patient required two additional doses. The venom injections were given alternately into the deltoid region and into the buttocks. Simultaneously with the administration of cobra venom, the patients were given sulfanilamide in doses of 10 grains (0.65 Gm.) for adults and 5 grains (0.32 Gm.) for a girl aged 7 years, every four hours night and day until the eruption disappeared completely. All 5 patients were benefited, and there were no unfavorable reactions.

Southern Medical Journal, Birmingham, Ala.
41:1-98 (Jan.) 1948 Partial Index

*Testosterone in Treatment of Advanced Breast Cancer: Preliminary Report. H. W. Jones Jr.—p. 4.
Treatment of Boeck's Sarcoid with Nitrogen Mustard: Preliminary Report. G. E. Snider.—p. 11.
Treatment of Perforating Ulcers of Foot Complicated by Diabetes and Peripheral Vascular Disease. H.M. Kern. —p. 14.
*Endemic Typhus in Baltimore. J. W. Davis, W. H. Schulze and G. W. Schucker.—p. 21.
Subtotal Esophagectomy for Benign Stricture of Esophagus: Case Report of Unusually High Esophagogastric Anastomosis. C. J. Donald Jr. and C. H. Kessler.—p. 26.
Ainhum or Dactylolysis Spontanea: Report of Case. C. Young Jr.—p. 29.
Elimination of Non-Surgical Lesions in Brain Tumor Suspects: (A) Pseudo-Tumor Cerebri and (B) Papilledema Without Increased Intracranial Pressure (Optic Neuritis). J. M. Meredith.—p. 31.
Loeffler's Syndrome with Erythema Multiforme. C.F. Lehmann.—p. 37.
Standardization of Tonometers. J. S. Friedenwald.—p. 44.
Clinical Significance of Rh Factor. M. S. Sacks, W. J. Kuhns and Elsa F. Jahn.—p. 47.
Industrial Health in Postwar Era. S. J. Seeger.—p. 53.
Rehabilitation in Operation. H. A. Rusk.—p. 57.
Convulsions in Childhood: Practical Considerations. M. G. Peterman.—p. 62.

Testosterone in Breast Cancer.—To aid in determining the value of testosterone therapy of cancer of the breast, Jones made observations on 15 patients under treatment with this agent. Patients were given 300 mg. of the drug per week in divided doses. Three of 5 patients with metastases to the bone had clinical and roentgenographic evidence of healing; another had relief of pain but steady progression of the lesion; in 1 instance treatment was a complete failure. Two of 10 patients with extraskeletal metastases showed startling improvement, but the remainder were failures. The variability of response noted in this and other series of carcinoma of the breast treated with testosterone is not at all understood and warrants further study.

Endemic Typhus in Baltimore.—Davis and his associates say that the City Health Department of Baltimore has recorded 59 cases of typhus with 13 deaths during the last twenty years. In October 1946, after a lapse of nearly three years since report of a case of typhus, a disease unmistakably identified as endemic typhus developed in a child living in a crowded row-house. From this row, during the next four months, 5 more cases, 1 of them fatal, were reported. A physician participating in the necropsy of the fatal case contracted the disease. Diagnosis of endemic typhus was supported in each case by results of laboratory tests. The patients lived in a row of sixteen old houses located across from a railroad and truck terminal, where freight from areas of the country where endemic typhus is comparatively common is handled and unloaded. These houses had been remodeled under the Federal Homes Use program to provide housing for war workers. All families had access to the basements, where they did their laundry and deposited their garbage in uncovered containers. In remodeling the houses nothing had been done to make the basements ratproof. Numerous openings in the walls permitted rats to enter. Complement fixation tests on blood from persons living in the infected area indicated that missed cases of endemic typhus are not uncommon. To prevent spread of the outbreak, rats and fleas were eradicated and many exposed persons received endemic typhus vaccine. No new cases developed subsequently.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

21:1-54 (Jan.) 1948

Comparison of Lethal Effect of Neutrons and Gamma Rays on Mouse Tumors (a) by Irradiation of Grafted Tumors in Vivo, (b) by Irradiation of Tumor Fragments in Vitro. L.H. Gray, and J. Read. -p. 5.

Dosage Estimation and Distribution in Radium Treatment of Carcinoma of Cervix Uteri. New Method and Its Clinical Applications. M. Lederman and L.F. Lamerton. -p. 11.

Carcinoma of Cervix: Discussion on Value and Technic of Supplementary X-Ray Therapy. J.G. Winternitz. -p. 27.

Note on Some Biologic Aspects of Radiotherapeutic Treatment of Carcinoma of Cervix. P.C. Koller. -p. 41.

Craniosketetal Dysplasia. N. Hajdu and H. Kauntze. -p. 42.

Lancet, London

1:1-48 (Jan. 3) 1948

Shock in Obstetrics. H. L. Sheehan. -p. 1.

Initiation of Cellular Infection by Influenza and Related Viruses. F. M. Burnet. -p. 7.

Ankylosing Spondylitis. W. Lennon and Isabella S. Chalmers. -p. 12.

*Action of Tetraethyl Ammonium Bromide. A. M. Boyd, G. H. Crawshaw, A. H. Ratcliffe and R. P. Jepson. -p. 15.

*Tetraethyl Ammonium Bromide in Hypertension and Hypertensive Heart-Failure. G. W. Hayward. -p. 18.

Folic Acid in Nutritional Anemia. J. W. D. Goodall, Hilda I. Goodall and D. Banerjee. -p. 20.

*Streptomycin in Human Plague. P. V. Karamchandi and K. Sundar Rao. -p. 22.

Tetraethyl Ammonium Bromide in Hypertension.—This investigation by Hayward was undertaken to determine whether the administration of tetraethyl ammonium bromide would be a useful preoperative test in the selection of hypertensive patients for sympathectomy. He found that its administration to patients with essential hypertension leads to a considerable fall in blood pressure in nearly all cases. This is caused by paralysis of the autonomic ganglions, with a resultant blocking of the efferent sympathetic vasoconstrictor impulses. After intravenous injection the blood pressure remains low for five to thirty minutes; and after intramuscular injection, for two to eight hours. Tetraethyl ammonium bromide is less effective than sympathectomy in producing a maximal degree of vasodilatation. Patients with hypertensive heart failure have temporary relief of orthopnea and dyspnea when the blood pressure is lowered with tetraethyl ammonium bromide. There is an increase in the vital capacity, tidal air and pulmonary ventilation per minute, with a fall in venous pressure. Pulmonary congestion is probably diminished as a result of the extensive peripheral vasodilatation. Tetraethyl ammonium bromide may be useful in the emergency treatment of acute left ventricular failure. In patients with chronic congestive failure the fall in urinary output which results from the lowering of blood pressure makes the use of tetraethyl ammonium bromide inadvisable at present.

Action of Tetraethyl Ammonium Bromide.—Boyd and his associates studied subjective phenomena and changes in pupils, blood pressure and pulse rate in 50 persons, 25 of whom served as controls. Of the other 25 patients, 15 had obliterative vascular disease with or without hypertension and 10 were subject to vasospastic episodes. The authors found that tetraethyl ammonium bromide has a limited practical value in the study of the peripheral vascular response to sympathetic block and in no way compares with such reliable and proved tests as local nerve block or paravertebral block.

Streptomycin in Human Plague.—Karamchandi and Sundar Rao report that 5 patients who were practically moribund with plague were treated with intramuscular injections of streptomycin, 0.125 Gm. being administered every three hours. The outbreak of plague occurred in the Anantapur district of Madras Presidency, and so far 152 cases have been observed, with 66 deaths. The 5 patients treated with streptomycin are all alive and well today. The streptomycin treatment was usually continued for three to four days. Most of the patients received a total of 4 Gm. of streptomycin. Improvement was usually noticeable after 1.5 Gm. had been given, or after about thirty-six hours. No adjuvants were given with the streptomycin and all cases had been bacteriologically verified as plague.

Medical Journal of Australia, Sidney

2:709-736 (Dec. 13) 1947

*Role of Spinal Fusion in Arthrogenic Sciatica: Review of 52 Cases. E. F. West. -p. 711.

Traumatic Dislocations of Hip. D. W. L. Parker. -p. 713.

Technic for Arthroplasty of Elbow Joint. A. C. Armstrong. -p. 716.

Poliomyelitis in Preventive Orthopedics. Jean MacNamara. -p. 717.

Preventive Orthopedics. Jean MacNamara. -p. 720.

Spinal Fusion in Arthrogenic Sciatica.—West reviews the position which the operation of spinal fusion holds in the treatment of that type of sciatica which is thought to be due to changes in the posterior intervertebral or apophysial articulations of the lower lumbar segment of the spine; he discusses 52 patients so treated. He is not dealing with herniation of the disk causing compression of a nerve root, the accepted treatment for which is removal of the disk substance. It is not his practice to follow this by fusion unless the disk is so much damaged as to lead to instability and arthritic changes in the posterior joints. In the cases under review, in the arthrogenic type the sciatica is presumably produced by irritation of the funicular segment of one or more nerve roots where these lie in close proximity to the arthritic apophysial joints, with associated vascular changes. Swelling and redness of a nerve root have been seen at operation in cases in which no protrusion of the disk could be found, but fusion has cured the condition. Thirty-seven of the 52 patients who have been subjected to fusion operation have been followed. In 26 of these the operation gave complete and lasting relief; in 7 others the results were fair and in 4 the treatment was a failure. One of these 4 patients died of paralytic ileus four days after operation. In 2 of the other 3, in whom the fusion was done with iliac bone, the bone has been absorbed and fusion has not occurred. The remaining patient appears to have good fusion. He has lost his sciatica but complains of pain, which appears to originate in the area from which the iliac bone was taken.

Dermatologica, Basel

94:264-384 (No. 5 & 6) 1947. Partial Index

Modification of Skin Temperature by Hot Drinks. W. Burckhardt and A. Steigrad.—p. 274.

Studies on Darkening of Freckles. Z. Felsher, L. Rubin and S. Rothman.—p. 280.

Peculiar Local Tissue Changes Following Intracutaneous Injection of Staphylococcal Vaccine. S. Hellerstrom.—p. 309.

Radium Treatment of Cicatricial Keloids. W. Lutz.—p. 315.

*Dermatoses and Porphyria. J. Gomez Orbaneja and H. Castro Mendoza.—p. 327.
*Desensitization in Urticaria Produced by Bread. H. Stauffer.—p. 352.

Dermatoses and Porphyria.—Gomez Orbaneja and Castro Mendoza investigated the possibility of a connection between the excretion of porphyria and dermatoses in which photosensitivity plays a part. No connection could be observed between the quantity of porphyria excreted and sensitivity to light. In some cases treatment with aminonicotinic acid resulted in improvement and was followed by an increased elimination of porphyrin.

Desensitization in Urticaria Produced by Bread.—Stauffer reports the case of a woman, aged 46, in whom urticaria developed, first on the arms, then over the entire body. Cutaneous tests with various foods proved negative, except those with bread. The patient was told to abstain from bread and was subjected to autohemotherapy. The urticaria disappeared and did not recur as long as the patient abstained from bread and from other foods made of dough. Desensitization with an antigenic extract made of bread was carried out and proved successful in that the patient was again able to eat bread and other foods prepared from flour without the development of urticaria. The preparation of the extract is simple. The author stresses that this form of desensitization is of great importance in medical practice.

Deutsche medizinische Wochenschrift, Stuttgart

72:689-720 (Dec. 19) 1947. Partial Index

*Deficient Diet and Diabetes Mellitus. O. Feuchtinger.—p. 689.
Immunity After Immunization Against Diphtheria. O. Guthof.—p. 707.
*Pulmonary Fibrosis Caused by Sillimanite. H. Gärtner and C. van Marwyck.—p. 708.
*Unusual Case of Acute Intoxication by Benzene. H. Robmann.—p. 712.

Deficient Diet and Diabetes Mellitus.—Feuchtinger describes observations on diabetic patients made during the latter part of the war and during the postwar period when the insulin supplies were reduced and the diet became steadily more restricted. At the time of the invasion and capitulation and during the first months of occupation by the allies, the daily dietary intake was frequently only 1,000 calories or less. During this time when diabetic persons were not provided with special additions to the famine rations, that is, from April 1945 to December 1945, the author studied 50 diabetic patients who had previously been under his observation. About half of them received insulin. He found that with one or two exceptions all patients with diabetes mellitus showed improvement in their metabolic status. There was a parallelism between the reduction in calories and the improvement in metabolism. The blood sugar decreased as did also the glycosuria and the insulin requirements. The improvement in the carbohydrate tolerance persisted in about half the patients after the dietary calories were somewhat increased.

Pulmonary Fibrosis Caused by Sillimanite.—Gärtner and van Marwyck point out that in the case of pneumonoconiosis under consideration it was first assumed that corundum might be the cause, but since corundum has been proved harmless, further studies were made on the factory dust as well as on a piece of lung tissue. The examination revealed similarity between the residue obtained from the pulmonary tissue and the dust found in a smelting furnace. This dust consisted of corundum, bauxite, amorphic silicic acid and a silicate that resembles sillimanite. Histologic studies revealed changes that have been produced in animals by sillimanite. The authors deduced that the harmful substance in the case under consideration was a substance resembling sillimnite, perhaps in connection with the amorphic silicic acid. Pneumococcus infection may have further complicated the fibrosis resulting from sillimanite.

Benzene Poisoning.—Robmann reports the case of a man who was found unconscious in a path between benzene tanks, where considerable quantities of purified benzene had leaked out. The patient was unconscious, the reflexes were abolished and the pupils were dilated and did not react. The breath had a benzene odor, and some parts of the clothing were saturated with benzene. After the patient had been undressed, nikethamide and oxygen were given. During an attack of tonoclonic convulsions, blood pressure was up to 200, whereas it had been 120 systolic and 70 diastolic at the time of admission. The pulse was regular but the count was increased. When the patient regained consciousness after forty-five minutes, he complained of headaches and dizziness. At the end of ninety minutes he experienced itching at the sites which had been in contact with the benzene. Blisters surrounded by red areas appeared. On the following day, pulse irregularities with a frequency of 100 per minute were observed and electrocardiography revealed arrhythmia on the basis of an auricular flutter and irregular extrasystoles of the left ventricle. The patient complained of pressure in the chest. Treatment with quinidine was instituted. The cardiac irregularities disappeared after several days, and the cutaneous lesions healed. The author points out that absolute arrhythmia resulting from auricular flutter is not characteristic for benzene poisoning.

Medicina, Mexico, D. F.

28:1-22 (Jan. 10) 1948. Partial Index

*Pharmacodynamic Properties of Tanglefoot (Karwinskia Humboldtiana). M. D. Rivero. -p. 1.

Pharmacodynamic Properties of Tanglefoot.—Tanglefoot (Karwinskia humboltiana) is frequently found in some states of the United States and Mexico. It is toxic for man and animals, mainly cattle, goats, sheep and chickens. Tanglefoot causes diarrhea, which appears early in the course of poisoning and then subsides. The greater toxicity of the plant is for the central nervous system, the fruit causing paralysis of the legs and later on paralysis of the whole body and death by asphyxia. The fruit causes nervous symptoms, hyperesthesia to temperature and to pain, somnolence and blindness in the course of paralysis. As a rule the poisoning follows a fatal course. Recovery occurs only in cases of poisoning from consumption of an extremely small piece of the fruit. Cases of collective poisoning have been reported in the literature, with an erroneous diagnosis of cases of rare epidemic diseases. The author carried on experiments on pigeons. From her results she concludes that: The poison substance is mainly concentrated in the teguments of the almond seed. It is soluble in chloroform sulfuric ether, methyl alcohol and benzene. The toxic substance causes selective damage on the brain stem of domestic pigeons. The time between poisoning and the appearance of toxic symptoms and the acuteness of the symptoms depend on the amounts ingested. The greater the doses of toxic substance the more rapid the absorption of the substance by the body and the appearance of symptoms and also the more acute the symptoms and course of the disease.

Book Notices

Dermatology in General Practice. By Sigmund S. Greenbaum, B.S., M.D., F.A.C.P., Professor of Clinical Dermatology and Syphilology, University of Pennsylvania Graduate School of Medicine, Philadelphia. Fabrikoid. Price, $12. Pp. 889, with 846 illustrations. F. A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1947.

A book of dermatology emphasizing the problems met in general practice is needed. It is still needed. As the choice of the experts of some of the special sections was fortuitous, the articles on peripheral vascular diseases, the exanthems and the diseases of the oral mucous membranes are excellent. The articles on pruritus and syphilis are also commendable. Attention is called to a short chapter on page 166 emphasizing that there is no reason to believe that inadequate surgery can be salvaged by anything short of a carcinocidal dose of irradiation. This is a valid statement regarding the problem of postoperative irradiation of cancer in any location.

There are some controversial statements, which cannot go unchallenged: that the addition of cystine to the diet favors the growth of hair; that poor scalp hygiene plays a role in premature alopecia; that massaging and ultraviolet ray are effective in the treatment of premature alopecia, and male hormones in senile baldness (remember that eunuchs are not bald); that tar soap is preferable as a shampoo for dry scalp; that dull hair is the result of insufficient brushing and combing; that scalp massage improves circulation in the hair follicles; that henna is a safe vegetable hair dye; that psoriasis is a disease of the healthy person; that the etiologic basis of rosacea (a vasomotor instability) is closely allied to that of acne vulgaris (a disease of the pilosebaceous apparatus); that some dermatoses are the patient's solution of an emotional conflict and that some are best left untreated; that acetylsalicylate seldom produces cutaneous lesions, and that pityriasis rosea is not contagious.

It would seem also that the general practitioner needs to be informed more about drug eruptions caused by sulfonamide drugs, gold, penicillin and barbiturates. Among important omissions are the following: quinacrine is the probable cause of "jungle rot"; patients with erythema nodosum should be put to bed; use large hot fomentations for boils; proper footgear for dermatomycosis pedis and pressure for periarticular cysts. The inclusion of multiple idiopathic pigmented hemorrhagic sarcoma with sarcoma cutis and acute disseminated lupus erythematosus with tuberculosis cutis is misleading. Greater care in proof reading would have obviated such mistakes as occurred; page 220, corporis instead of corpus; page 666 under prophylaxis should read: "This consists of adequate disinfection of the clothing and bed linen"; on page 686 use of the word "dermic" is questioned.

Contact Lenses. By Theo. E. Obrig, A.B., President, Obrig Laboratories, Inc., New York. Second edition. Fabrikoid. Price, $8. Pp. 546, with 204 illustrations. Obrig Laboratories, Inc., 49 E. 51st St., New York 22. 1947.

This is the second edition of the book intended for the optician and optometrist rather than for the opthalmologist. The chapter on anatomic data is elementary, as is that on biochemistry and physiology. Chapter III discusses conditions for which contact glasses are prescribed. The author includes retinitis pigmentosa in which he says that contact lenses are a means of prolonging useful vision. He cites 2 cases, both of highly myopic persons. The only proper conclusion he can draw is that his 2 (14 and 20 △) myopic patients, who had retinitis pigmentosa, saw better with contact glasses. He discusses optics and fitting and devotes a chapter to solutions used with contact lenses. The final one hundred and sixteen pages are devoted to patents for contact glasses.

L'hyperinsulinie: Les états de suractivité fonctionnelle du pancreas endocrine en médecine expérimentale et en clinique. Par Marcel Sendrail, professeur de pathologie générale a l'Université de Toulouse, Toulouse. Paper. Price, 500 francs. Pp. 256, with 30 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6e, 1947.

This excellent monograph will aid any student of hyperinsulinism. The author has been interested in hyperinsulinism for fifteen years. The volume of two hundred and fifty six pages contains twenty-five figures, 5 colored plates and seven chapters with a bibliography so extensive that it exceeds expectation. The literature is carefully reviewed, and the author's own investigations are presented without dogmatism.

In chapter 1 an excellent review is given of the experimental etiology of diabetes. The hypersecretion of the two minor hormones, vagotonin and lipocaic, as well as of the major hormone, insulin, may be accompanied by the hyposecretion of one of the other hormones. Rightly the author discerns the lack of close correlation between hyperplasia of islet cell tissue and overproduction of insulin, making the diagnosis of hyperinsulinism difficult from the histologic appearance of the pancreas. Incidentally, the five types of cells found in the pancreas, varying principally according to granules, are mentioned: (*a*) those with alpha granules, possibly producing lipocaic; (*b*) the most numerous of all, with beta granules producing insulin; (*c*) with no granules, found only in the guinea pig; (*d*) few in number and of unknown function, and (*e*) found only in the opossum. The innervation of the islets by the stimulating fibers of the right vagus in contrast to the opposite effect exerted by the fibers of the sympathetic system is emphasized. His own experimental work showed that prolonged fasting in the experimental animal produces hyperplasia of type a cells, thyroxin of b cells and gestation of both types.

In chapter 2, on experimental hyperinsulinism, he discusses the exogenous administration of insulin and endogenous stimulation of the animal's own secretion. The absence of quantitative relationship between the level of glycemia and symptoms is plainly brought out, and also the fact that convulsions following injections of protamine zinc insulin may occur even when the blood sugar has begun to rise following a severe depression, and that these may not respond to the administration of dextrose. He has observed the permanent cortical changes from prolonged hypoglycemia but apparently has not encountered many of those pathetic cases in which death occurs after weeks or months of a vegetative existence. He recognized that the changes in the brain are similar to those in eclampsia, uremia, lead poisoning and other conditions which produce cerebral anoxia. The importance of epinephrine in connection with hypoglycemic reactions and the resulting blocking of vasomotor phenomena by ergotamine are recorded. Neither insulin nor the intermediate metabolism of carbohydrate is responsible for the reactions, but rather the nonutilization of dextrose supplied by the cerebral cells, because of anoxia. The second part of this chapter summarizes the production of hyperinsulinism by the ingestion of carbohydrate food, by fatigue, by hyperthermia, which generally has been overlooked, by faradic stimulation of the vagus nerve and by administration of pancreatropic hormones as described by Anselmino and Hoffmann (unconfirmed).

The typing of Stensen's duct of the parotid gland, as well as the functional suppression of glands antagonistic to the pancreas (namely, the adrenal, thyroid and pituitary) are mentioned together with diversion of the biliary flow, although none of these methods is wholly satisfactory and constant in action. He refers to physical methods such as radiation of the pancreas, the use of ultraviolet ray and diathermy or implantation of accessory pancreas, as well as ligature of the duct of Wirsung. He is much interested in the inhibition of insulin secretion by sympathetic stimulation, pointing out that the sympathetic nerve supply to the pancreas enters along the arterial trunks. He gives his own method of sympathectomy by perivascular stripping of the sympathetic nerve.

In chapter 3 the clinical aspects of hyperinsulinism are discussed. Hypoglycemic coma is not easy to reverse if it persists for an appreciable time. He describes manifestations of chronic hyperinsulinism and suggests that obesity may occur as a result, just as hyperinsulinism has been employed to produce gain in weight. He states that when insulin is in excess, lipocaic may be deficient. He, too, has noted the increase of fat deposits of the whole body, particularly around the face, in diabetic subjects undergoing insulin therapy, and especially the obesity due to islet cell adenoma. Hyperplasia of islets has been observed in obese persons and such persons may have increased sensitivity to insulin. Allergic reactions are discussed. He mentions the unpredictability of hypoglycemic reactions according to the blood sugar level and incidentally mentions changes in the chlorides, phosphorus, calcium and lipids of the blood in hyperinsulinism. Hypoglycemia is usually associated with alkalosis and a rise in the alkali reserve.

Dextrose tolerance tests and the insulin sensitivity test are described and evaluated in chapter 4. The insulin sensitivity test, he states, should be called the Sendrail test. He recommends that in this test insulin be given intramuscularly, 0.25 unit per kilogram of body weight, and that the decline in the blood sugar level measured by the total area under the curve before the blood sugar returns to normal is the important measurement.

The varieties of spontaneous hyperinsulinism are classified etiologically and their independence of pancreatic disease is recognized in chapter 5. First, there is the hyperinsulinism with organic lesions: (*a*) adenomas, (*b*) insular hyperplasia without tumor, (*c*) carcinoma of the islands of Langerhans and (*d*) hypoglycemia with pancreatitis. Apparently he is unfamiliar with the fact that alloxan will destroy normal beta cells, leaving untouched those in a carcinoma of beta cells. He has noted severe hypoglycemia accompanying tuberculosis. In the second section of this chapter functional hyperinsulinism is thoroughly reviewed. He mentions the alarm reaction and that a congenital hypoglycemia may be noted in many races. He mentions the normal hypoglycemia of newborn infants and the varying effects of fasting according to the species of animal. He implies that hypoglycemia after the ingestion of food is due to the secretion of insulin by secretin released from the duodenum, with later stimulation through the vagus brought about by the effect of the blood sugar level on the regulating centers in the diencephalon. Vagus reflexes he believes responsible for the hypoglycemia of hyperthermia. The insular hyperpalsia in gravid females is mentioned with multiplication of both a and b type cells. The effect of exercise is recognized and explained by (1) better utilization of insulin in the muscles due to capillary dilatation, (2) increased secretory activity of the pancreas and (3) relative hyperinsulinism by exhaustion of the adrenals. This chapter presents the subject of nervous hyperinsulinism in detail, refers to the less demonstrable metabolic hyperinsulinism which may be connected with lipoid atrophies, the hyperinsulinism of shock, of disturbance of the equilibrium of vitamins, particularly by thiamine either acting directly or through a better utilization of dextrose, and even in the diabetic person the occasional development of hyperinsulinism in the early stages in which the patient swings back and forth between hyperinsulinism and hypoinsulinism. He mentions the occasional diabetic person in whom there develops hypoglycemia even without insulin after it has been taken for years, and in such a case the tendency of the diabetic pancreas to regenerate islet cell tissue, even with the formation of small adenomas. He mentions renal hyperinsulinism in which insulin usually excreted by the kidney is retained. The blood level of insulin then may rise. The third section of this long chapter takes up relative hyperinsulinism produced by intervention of the adrenals, thyroid, pituitary and gonads.

The differential diagnosis of states of spontaneous hyperinsulinism is clearly reviewed in chapter 6: (1) There is hypoglycemia due to insufficient dextrose intake and (2) hypoglycemia due to abnormality of dextrose storage, about which the author is skeptical, particularly in relation to hypoglycemia due to hepatic disease. Judd, Kepler and Rynearson (Am. J. Surg. **24**: 345 [May] 1934) described a severely diabetic person taking much insulin, who in a period of months was found to give it up because of severe hypoglycemia reactions. These reactions continued without insulin. At operation, no adenoma of the islands of Langerhans was found but the liver showed "fatty metamorphosis" and fibrosis. Treatment with betaine and diet was followed by improvement. Diabetes returned when the liver improved. (3) The hypoglycemia of glucose loss is caused by renal glycosuria and also by lactation. These latter two conditions are the only two types of hypoglycemia in which the author excludes hyperinsulinism.

The final chapter, on therapeutic problems of hyperinsulinism, considers both the immediate treatment with administration of dextrose and the preventive treatment consisting of excision of adenomas, resection of a part of the pancreas and alloxan therapy. The use of hyperinsulinism as a therapeutic agent in psychotherapy and for various allergic conditions including asthma, cutaneous allergy and gastrointestinal allergy is mentioned. He concludes with a consideration of various possibilities for the surgical cure of diabetes, such as ligation of the duct of the parotid with the purpose of stimulating that gland to produce an insulin-like hormone, the removal of the adrenal or its denervation; splanchnectomy or splanchnic block and diversion of the biliary flow. He realizes that all these methods are under investigation but that none have produced any striking results. He concludes that ligature of the pancreas, Mansfeld operation, is of no value, but he believes that there is considerable promise in pancreatic sympathectomy as described by himself and Cahuzac in 1936.

The presentation of the literature without dogmatic statements will be stimulating to investigators. Had he more experience with the two newer methods of producing diabetes, namely, the use of alloxan or Dohan and Lukens's intraperitoneal injection of dextrose, a new approach to the study of hyperinsulinism and diabetes would have been emphasized; obviously, refinements of the estimation of insulin in the blood will throw new light on the whole subject.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

MASKED HYPERTHYROIDISM

To the Editor:—1. What signs, symptoms and laboratory data must be present to diagnose masked hyperthyroidism? 2. What are the general approach, steps and the over-all management of a case of masked hyperthyroidism in a man aged 57, who has been on digitalis to the intoxication point for at least two years and probably longer, but who still has moderate heart failure and whose special features are as follows: The heart rate is 104 per minute, with electrocardiographic evidence of auricular fibrillation; the blood pressure in both arms is 170 systolic and 70 diastolic. There are moist basal rales in both lungs. He is underweight 33 pounds (15 Kg.). The basal metabolic rates on two occasions were plus 56 per cent and plus 48 per cent; a previous report, about two months before, was plus 27 per cent. The erythrocyte count was 3,900,000; the hemoglobin level 71 per cent. The blood cholesterol level is low. A teleoroentgenogram shows a moderately enlarged heart, hypertensive type.

M.D., Washington, D. C.

ANSWER.—The following signs and symptoms are of value in the diagnosis of masked hyperthyroidism: tremor; palpitation; tachycardia; increased warmth and redness of the skin, sweating; loss of weight in spite of a good appetite; irritability; a palpable goiter, and, a persistently elevated basal metabolic rate which is reduced by the administration of iodine or propylthiouracil.

Sometimes in patients with hyperthyroidism difficulty is experienced in feeling the goiter because it may lie behind the upper part of the sternum and be felt only when great care is used in palpating it.

The treatment of hyperthyroidism complicated by cardiac decompensation is not much different from that of uncomplicated hyperthyroidism. The hyperthyroidism should be brought under control with propylthiouracil. In the patient described, the dose of digitalis should be reduced until it maintains digitalization without inducing intoxication. After the basal metabolic rate has dropped to normal, a decision must be reached concerning a thyroidectomy. If the decompensation clears up with the disappearance of the hyperthyroidism, iodine should be given in addition to propylthiouracil for one week and then a subtotal thyroidectomy should be performed. The risk of a thyroidectomy under these circumstances is little greater than in patients with uncomplicated hyperthyroidism. If the decompensation does not disappear when the basal metabolic rate drops to normal, then the risk of operation is definitely greater and the advisability of controlling the hyperthyroidism with propylthiouracil must be explored. In the presence of slight cardiac insufficiency thyroidectomy can often be performed without difficulty. If moderate or severe cardiac insufficiency persists, it is probably best to treat the patient medically.

LOW CHOLESTEROL DIET

To the Editor:—Some investigators stress the importance of a low cholesterol diet in coronary artery disease. Are fats derived from vegetables, fruit and nuts just as rich in cholesterol as fat of animal origin?

M.D., New York.

ANSWER.—Animal fats alone contain cholesterol, vegetable fats do not. The plant sterols are not absorbed to any significant extent by man, while cholesterol is readily assimilated.

IRRADIATION OF BLOOD

To the Editor:—Recently I have heard from a patient about a treatment called "Hemo." Essentially this consists of removal of 500 cc. of blood, irradiation of this blood, and its administration again to the patient, at one sitting. This process is supposed to be helpful in many diseases. What is the value of this treatment? Please cite references pertaining to it.

M.D., Cleveland.

ANSWER.—There has appeared in the literature recently a method of treatment by irradiation of the blood. Roughly, this procedure consists of withdrawing blood from the patient, citrating the blood, irradiating it with ultraviolet light in a special device and reintroducing the blood into the veins of the patient. Irradiation is carried out by the Knott technic. This method of treatment is said to be beneficial in the "control of bacterial diseases, control of virus diseases, promotion of wound healing, asthma" and in many other conditions. Needless to say, these claims are not well established.

ATHEROSCLEROSIS

To the Editor:—What advice should be given a man aged 55 who reveals a rather strong hereditary tendency to the early development of atherosclerosis? He has a blood cholesterol level of 230 to 240 mg. per hundred cubic centimeters. Basal metabolic rate is plus 1 to minus 9 per cent. He is not overweight.

Physical examination reveals essentially normal conditions except for a mild transient diastolic hypertension, some nervous tension and anxiety about his future.

Should thyroid be administered and, if so, how much? Is a low fat diet advisable? Is choline chloride or any other drug indicated?

M.D., California.

ANSWER.—It is difficult, if not impossible, to be specific as to suggestions to the patient briefly described in the query. Knowledge concerning the etiology and pathogenesis of atherosclerosis is still too fragmentary to justify any dogmatic routine. Individualization is absolutely essential in the management of senescents. Divergence between individuals increases with age (Stieglitz, E. J.: "Geriatric Medicine: Diagnosis and Management of Disease in the Aging and in the Aged, Philadelphia, Saunders, 1943). It would seem that thyroid should not be administered to this particular patient. Increasing his metabolic rate would tend to lower the blood cholesterol, but it would also increase his anxiety, arterial tension and cardiac work. Certainly a low fat diet is indicated, particularly reducing the intake of fats which have been heated. Choline chloride may be considered perfectly safe and may be most beneficial. Liberal administration of vitamin B complex, particularly combinations containing both choline and inositol, has been reported to be definitely decholesterolinizing.

The application of preventive or hygienic guidance to senescent patients involves their whole pattern of living; exercise, sleep, investment of leisure, water intake, protein and many other factors are important. Education of patients regarding the changing capacities and limitations which come with age has been sadly neglected. Such education is time consuming but worth while. As the child prepares to become an adult, so should the adult prepare for senescence. In this particular instance the apprehension of the patient over growing older may be the most significant facet of his problem. Several sound books on the problems of senescence written for educated laymen are now available: Johnson, W.: "Life After Fifty," New York, Whittlesey House (McGraw-Hill Book Company, Inc.), 1947, and Stieglitz, E. J.: "The Second Forty Years," Philadelphia, Lippincott, 1946.

BLOOD CHOLESTEROL

To the Editor:—We are told that animal fats such as egg yolk, butter, cream and cheese build up high cholesterol level in the blood. Do vegetable fats such as "Wesson oil," peanut oil and the various margarines produce the same result?

Guy L. Bliss, M.D., Claremont, Calif.

ANSWER.—Ingestion of neutral fat (triglyceride), the predominating lipid in animal and vegetable culinary fats, may cause a slight elevation in blood cholesterol content, but values return to normal in the postabsorptive period. In this respect both animal and vegetable fats bring about the same response. However, animal fats contain cholesterol but vegetable fats do not. Plant sterols are not absorbed to any significant extent by man, although cholesterol is readily assimilated. For this reason animal fats should elevate the blood cholesterol level to a greater extent. When blood cholesterol is elevated following ingestion of vegetable fats, it is assumed that the choiesterol must be mobilized from sources within the body.

PENICILLIN AND SULFONAMIDE DRUGS

To the Editor:—Many persons use penicillin and sulfonamide drugs interchangeably. If a patient has pneumonia, infected ears or other local infection penicillin is given because its use does not require doing white blood cell counts and urinalyses. Should not a sulfonamide compound be the drug of choice, since it has a wide range of activity?

M.D., New York.

ANSWER.—The selection of the proper chemotherapeutic agent for the treatment of infections depends on many factors. Most important, of course, is the type of bacterial infection and its location. Long (*New England J. Med.* **237**:837 [Dec. 4] 1947) summarized the choice of chemotherapeutic agents in infections. Penicillin should be used in all susceptible infections. It has the advantage that it is nontoxic and does not cause side effects except in the few instances of hypersensitivity to penicillin. For most acute infections due to the gram-positive organisms (pneumococci, streptococci and staphylococci) penicillin is the drug of choice. In meningococcic infections the sulfonamide drugs are preferred. In general it can be said that penicillin and sulfonamide compounds can be used interchangeably for the treatment of susceptible infections. Penicillin has a greater range of safety.

HEMOPNEUMOTHORAX

To the Editor:—A recent case of spontaneous hemopneumothorax appeared suddenly in a young man, a former serviceman, who had been previously well and in whom evidence of infection has not been found. Trauma was not a factor. What is the statistical incidence of such an entity compared to pneumothorax alone? Chest specialists here state that about 40 cases have been reported. Comment as to etiology is requested.

Jean P. Papps, M.D., Forest Hills, N. Y.

ANSWER.—Although hemopneumothorax from external trauma or incidental to the administration of therapeutic artificial pneumothorax is frequently observed, spontaneous hemopneumothorax is a rare occurrence. Nevertheless, a recent review cites 145 cases from the literature, and in spite of scores of papers on the subject, many cases remain unreported. More than two thirds of the reported cases have been complications of pulmonary tuberculosis. Malignant tumors of the lungs or of the chest wall and emphysematous blebs or cystic changes in the lungs account for many of the others (Korol, E.: Hemorrhagic Pleurisy of Tuberculous Origin and Hemopneumothorax, *Am. Rev. Tuberc.* **33**:185, 1936; Hartzell, H. C.: Spontaneous Hemopneumothorax, *Ann. Int. Med.* **17**:496, 1942; Bernstein, A., and others: Spontaneous Hemothorax, *Dis. of Chest* **12**: 394, 1946).

SENSITIVITY TO "DIAL"

To the Editor:—A patient has, on two occasions, taken hypnotic doses of 5-5-diallylbarbituric acid ("dial," Ciba) and within less than an hour has experienced an intense pruritus of the prepuce. Several days later a lesion typical of herpes developed. Phenobarbital and pentobarbital sodium caused no such reactions. The patient had a history of recurrent herpes preputialis several years ago but cannot recall whether he had been taking barbiturates. What connection, if any, could there be between the use of this barbiturate and the development of the herpes?

M.D., Canada.

ANSWER.—The question raises two possibilities. First, were the lesions actually herpes in the sense that the virus could have been recovered from them, or were they an eczematous eruption of a herpetiform appearance from which, if it had been searched for, the virus could not have been recovered? Assuming that the lesions actually were herpes simplex, of which herpes preputialis is a variant, apparently they could arise in a susceptible person from a variety of causes. It is believed by some that the virus lies dormant within the host and that any one of a number of factors may serve as a trigger mechanism to precipitate an attack. Such factors are physical ones as sunlight, cold or trauma, other infections and reactions to food or drugs. There are several reports in the literature of herpetic eruptions arising constantly after the ingestion of certain foods or the taking of various drugs

If the lesions were not a true herpes simplex but were herpetiform vesicular eruptions, the connection between them and the taking of the drugs is at least seemingly more obvious, inasmuch as such reactions are reported with greater frequency. As far as the patient's reacting to only one of the barbiturates, this is not surprising. One person may be sensitive to practically all members of the barbituric acid series, whereas another is sensitive only to one or two of the members. This is also true for the sulfonamide compounds and for the arsphenamine series and for local anesthetics of the procaine series. The explanation presumably is that in one instance the sensitivity is specifically directed toward a common factor as the malonylurea nucleus and in another case is directed to this ring plus a certain side chain or to the side chain alone.

BENZENE

To the Editor:—Please give information and references on the action of benzene (benzol) and lacquers on bone marrow. Have there been any cases of myelogenous leukemia reported in which the patient was exposed to lacquers, benzene or other chemicals? What is the current status of the treatment of leukemia with benzene?

Joseph D. Sacca, M.D., Flushing, N. Y.

ANSWER.—These toxic substances affect the bone marrow and blood in several ways depending on dosage, duration of exposure and individual susceptibility. Outstanding observations include anemia, leukopenia, thrombocytopenia and increased blood destruction (Erf, L. A., and Rhoads, C. P.: The Hematological Effects of Benzene [Benzol] Poisoning, *J. Indust. Hyg. & Toxicol.* **21**:421, 1939, and Goldwater, L. J.: Disturbances in the Blood Following Exposure to Benzol, *J. Lab. & Clin. Med.* **26**:957, 1941).

Cases have been described in which leukemia developed subsequent to exposure to chemicals (Erf and Rhoads). Leukemia is seldom treated with benzene today because of the associated dangers and because other more satisfactory methods are available.

BLASTOMYCOSIS

To the Editor:—Information is requested regarding: (1) recent advances in treatment of blastomycosis, particularly the lymphatic and pulmonary forms of the disease. Are any of the newer antibiotics of value? (2) Are sensitivity test materials (skin tests) available? What is their specificity and reliability?

Commander (MC), U. S. N.

ANSWER.—In systemic blastomycosis the lungs are involved in 95 per cent of the cases proved by autopsy, and it is probable in most instances that the primary lesion was in the lung. From this focus there may be a sudden generalization of the disease with subsequent lesions of the bones, joints, spleen, kidney, central nervous system and skin with subcutaneous abscesses.

In treatment of systemic types of blastomycosis it is believed that iodides not only fail to arrest the disease but may cause a rapid spread of the lesions. Martin and Smith (Blastomycosis, *Am. Rev. Tuberc.* **39**:275-299, [Jan.-June] 1939) recommend partially desensitizing the patient by injecting subreacting doses of blastomycotic vaccine prepared from the fungus and gradually increasing the dose starting with 0.1 cc., increasing the dose every two or three days until little or no reaction is elicited. Iodides can then be more safely administered and sometimes may cure the infection (cases 10 and 11 of Martin and Smith).

In spite of this advance in treatment the prognosis of systemic blastomycosis is extremely bad. None of the newer antibiotics have proved successful in the human being, although there is some encouraging experimental work with newer extracts of fungi, plants and bacteria which show a strong antibiologic activity against the pathogenic fungi The skin test with blastomycin, which is not an extract of the fungus but a vaccine, is of some value. Martin and Smith prepared their heat-killed vaccine by washing off the yeastlike growth on blood agar and diluting 1:1,000 by volume in sterile isotonic sodium chloride solution. Fifteen to twenty minutes after intracutaneous injection of this material a punctate erythema appears around the site of injection. The specific reaction is similar to a positive tuberculin reaction, appearing in twelve to twenty-four hours and reaching a maximum in two to four days. A state of anergy is seen in patients in the terminal stages of the disease. Unfortunately the reaction is not specific, as it is occasionally observed in patients with nonblastomycotic infection. (Dr. Donald S. Martin, assistant professor of bacteriology, Duke University School of Medicine, Durham, N. C., may be able to provide this vaccine.)

Martin also described a complement fixation test which appeared to be specific; however, a negative test does not exclude the diagnosis, for complement-fixing antibodies are absent from the blood in some cases.

MILIARY TUBERCULOSIS

To the Editor:—A white man aged 38 with inactive pulmonary tuberculosis received an injury to his left testicle on Feb. 17, 1947. Swelling and tenderness of the testicle occurred, accompanied with febrile reaction. He was treated symptomatically for a few days, but because of progress of the condition he was admitted to a general hospital. On March 6, 1947 an epididymotomy was performed for drainage of an abscess. The wound drained and closed alternately thereafter. Tubercle bacilli were later recovered from the wound. Chest films at this time revealed a miliary dissemination of tuberculosis in the lungs. Subsequently tuberculous meningitis ensued and the patient died Sept. 9, 1947 in spite of intensive streptomycin therapy extending over a period of five months.

The injury to his testicle in all probability lighted up a latent focus in the genitourinary tract, which sent tubercle bacilli into the blood stream, as shown by the generalized miliary distribution, and resulted in his death.

I have seen cases of miliary tuberculosis wherein autopsy proved the focus to be in the genitourinary tract, notably the prostate. Can instances be cited to support my position?

J. J. Hennessy, M.D., Hartford, Conn.

ANSWER.—There are abundant observations in the literature tending to support the idea that trauma may make latent tuberculosis active or may even determine the localization of tuberculosis if tubercle bacilli are in the blood stream. If a guinea pig is given a parenteral injection of tubercle bacilli and then receives an intramuscular injection of a suspension of silica, tuberculosis develops at the site of the injection of silica.

Surgical intervention of a tuberculous area, wherever it is localized in the body, may initiate miliary tuberculosis. The development of tuberculous epididymitis following trauma casts some doubt on the diagnosis of inactive tuberculosis. Extrapulmonary tuberculosis is most apt to develop in cases of chronic hematogenous pulmonary tuberculosis. This type of pulmonary tuberculosis causes few symptoms and practically no physical signs and is often considered to be inactive when actually it is active. This type of pulmonary tuberculosis is also associated with actual showers of tubercle bacilli in the blood stream and is the type in which miliary tuberculosis is most apt to develop.

NITRATE CONTENT AND METHEMOGLOBINEMIA OF WELL WATER

To the Editor:—I have had a case of methemoglobinemia in an infant 2 months of age as a result of the ingestion of well water with a high nitrate content, as described in the *Journal of Pediatrics* (November 1946). 1. How is the high nitrate content of well water caused? Is well water with a high nitrate content a common finding? If so, why is methemoglobinemia so rarely found? 2. Is a blood sample still satisfactory for methemoglobin estimation after twenty-four to forty-eight hours? 3. Methylene blue given intravenously is recommended in the treatment of more serious cases. How can methylene blue for injection be locally prepared and sterilized for intravenous injection in urgent cases? In what dosage is it administered orally? Who manufactures it for intravenous use? Is there any difference between methylene blue as used for staining purposes and that for oral use and for intravenous solution?

M.D., Canada.

ANSWER.—1. High nitrate content of well water is probably caused by wells into which animal excreta, organic waste and surface water freely drain. Some wells may be satisfactory bacteriologically for drinking purposes, but this does not imply that such water cannot still be of a high content in nitrates; in filtering through soil the larger organic particles and bacteria are easily filtered out but the soluble nitrates remain. However, such wells are subject to bacteriologic contamination at any time. Many reports of similar cases of methemoglobinemia and well water with high nitrate content have been received since the recognition of the cause of cyanosis in some infants. The probable explanation for the few cases of methemoglobinemia caused by the ingestion of well water high in nitrate is that it is necessary for a relatively high amount of water to be ingested each day by the infant in order for enough nitrates to be converted to nitrite and thus cause methemoglobinemia. Another factor is that a certain amount of the methemoglobin is converted back to oxyhemoglobin each day, and if the production of methemoglobin is not in excess of that amount which is reconverted to oxyhemoglobin the clinical cyanosis will not appear. For this reason it is recommended that infants who are being fed artificial formulas in rural areas, especially if the condition of the well or the well water is suspected, should be given formulas which are relatively concentrated and do not necessitate the addition of a large amount of water. This means that whole cow's milk, if known to be bacteriologically safe, diluted with the necessary amount of water to make an acceptable formula should be used rather than evaporated or powdered milk in the preparation of formulas for infants in rural communities. As far as is known, there is no particular susceptibility of any infants to this condition. However, it must be noted that the signs and the symptoms which appear come primarily from the lowering of the amount of functional hemoglobin in the baby's blood stream, and for this reason if an infant is suffering from low hemoglobin in the first place and the additional loss of hemoglobin by conversion to methemoglobin is present, this infant is liable to show symptoms of anoxemia earlier than infants with a normal hemoglobin content.

2. Since methemoglobin is reoxidized to oxyhemoglobin on standing in contact with oxygen, it is necessary to make the methemoglobin estimation as quickly as possible after the blood is drawn. For this reason it is not profitable to depend on a sample of blood sent from a rural location to a proper laboratory for methemoglobin estimation. However, in an infant in which the condition is severe enough to be of concern, the blood grossly has a typical chocolate appearance as is observed in other forms of methemoglobinemia and can be seen when the blood is drawn into the syringe. Hence it is not necessary to depend on an estimation of methemoglobin before instituting therapy.

3. The use of methylene blue intravenously in such cases of methemoglobinemia effects a remarkable and instantaneous cure of the condition. The methylene blue, which is used in ampules as large as 50 to 100 cc. of a 1 per cent solution for the treatment of cyanide poisoning, is available in most centers. It is recognized that the use of this size ampule causes a great deal of waste of methylene blue solution, which is used in a much smaller dosage for the treatment of this condition. Methylene blue, if of a high chemical purity, can be prepared locally by making a 1 per cent solution and sterilizing by autoclaving and then administered in the dose of 1 to 2 mg. for each kilogram of body weight intravenously, but should not be recommended except in urgent cases. In less severe cases the methylene blue can be successfully administered orally in the dosage of 65 to 100 mg. of dye for each kilogram of body weight, although this is occasionally accompanied by vomiting and diarrhea. Methylene blue in 1 per cent solution in ampules from size 10 cc. to 100 cc. in boxes of six can be procured from William H. Rorer, Inc., 254 South Fourth, Philadelphia 6. There is no difference between the methylene blue used commonly for staining purposes and that used for oral administration or for preparation of intravenous solution, provided that it is of a high pharmaceutical grade.

ALUMINUM HYDROXIDE

To the Editor:—What is the information relative to early deleterious effects following prolonged aluminum hydroxide therapy for peptic ulcer?

M. J. Keren, M.D., Chicago.

ANSWER.—Aluminum hydroxide gel cannot be toxic because so much of it is being used every day by thousands of persons with ulcer, yet the literature is not full of reports of toxic reactions or late disasters.

Ehrmann (Ehrmann, R.: Drugs in the Treatment of Peptic Ulcer and Hypersecretion, *Am. J. Digest. Dis.* **12**:154-156, 1945) stated that the substance apparently is not absorbed to any great extent, because there is no increase in the usual trace in the urine. However, he stated that there was slight absorption with deposition in the liver. He was of the opinion that aluminum should not be taken continuously by patients.

Beazell, Schmidt and Ivy (Beazell, J. M.; Schmidt, C. R., and Ivy, W. C.: The Effect of Aluminum Hydroxide Cream on Absorption from the Gastrointestinal Tract, *ibid.* **5**:164-165, 1939) found that aluminum hydroxide given to dogs on a standard diet did not alter the fecal fat or content of nitrogen. When added to pancreatin in vitro it did not alter the tryptic or lipolytic activity. When it is put in the stomach it adsorbs a certain amount of pepsin. According to Grondahl and West (Grondahl, R. D., and West, E. S.: The Effect of Aluminum Hydroxide upon Food Utilization, *ibid.* **12**:197-199, 1945) administration of aluminum hydroxide increases the acidity of the urine.

Ivy and his associates pointed out the important fact that aluminum hydroxide gel withdraws phosphorus from the body; hence, to avoid this depletion it is well to give a phosphate gel which contains phosphorus.

In practical use the main objection to giving the aluminum gels is that they often produce constipation. According to Lichstein, Simpkins and Bernstein (Lichstein, J.; Simpkins, S., and Bernstein, M.: Aluminum Phosphate Gel in the Treatment of Peptic Ulcer, *ibid.* **12**:65-67, 1945) the aluminum phosphate gel has less constipating effect than the ordinary aluminum gel.

Hoffman and Dyniewicz (Hoffman, W. S., and Dyniewicz, H. A.: The Effect of Alumina Gel upon the Absorption of Vitamin A from the Intestinal Tract, *Gastroenterol.* **5**:512-522, 1945) found that aluminum gel has only a slightly depressant effect on the absorption of vitamin A. No depression of the tolerance curve for vitamin A was noted in 6 cases in which aluminum phosphate gel was used instead of aluminum gel. In 33 patients with peptic ulcer who had been on aluminum gel for two or more weeks, the plasma vitamin A and plasma carotenoid concentrations were apparently normal. There was a slight lowering of the absorption of amino acids, ascorbic acid and dextrose. However, from a nutritional point of view therapeutic doses of aluminum phosphate gel had no demonstrative effect on the absorption of the nutrient substances studied.

For an ordinary ulcer cure of a month or two there does not seem to be any reason for fearing the use of aluminum gel, but it might be wise not to keep taking it day in and day out for years.

ENLARGED HEART

To the Editor:—Are there known cases of enlarged hearts, due to myocardial toxicity from distant infection or from rheumatic fever, that have after a number of years returned to normal size? I do not refer to reversibility in acute conditions. Has rheumatic fever ever been treated from the allergic approach, i. e., antihistamine substances or adrenaline-like drugs?

M.D., Philadelphia.

ANSWER.—Many instances occur in which a heart enlarged as the result of rheumatic fever has been found years later to be normal in size. Some observers believe this is due to failure of the heart to increase further in size, as normal growth occurs (especially of the thoracic cage), rather than to an actual decrease in the size of the heart. The absence of recurrent rheumatic fever would seem to be the most pertinent means whereby this beneficial situation develops. A well substantiated and striking decrease in heart size has been demonstrated following the treatment of anemia of hookworm infestation. Change in the heart size on recovery from diphtheritic myocarditis could be cited as an instance of a similar change following the effect of a toxin on the heart muscle. There have been numerous attempts to treat rheumatic fever from the usual allergic approach with so-called blocking substances. There are no published reports indicating that such therapy is beneficial in rheumatic fever.

SYPHILIS IN PREGNANCY

To the Editor:-A young white woman, aged 26, was found to have a positive serologic response to the Wassermann test on a premarital examination in July 1947. She gave a history of a generalized papular rash a year and a half previously. On July 18, 1947 she had a Kahn determination of 444 and a Kolmer of 512 units. She was given some treatments, amount unknown, in a clinic in San Francisco and was then referred to a clinic closer to her home, where further treatment was carried out. Tests at this second clinic on August 18 revealed that she had a 4 plus Kahn and a 64 unit Kolmer. Between August 20 and 29 she was given 3,000,000 units of penicillin in oil and wax in divided doses, five injections of oxophenarsine hydrochloride "mapharsen" 0.06 Gm., and three injections of a bismuth preparation. Her titers since that date have been as follows: November 26, 64 units; December 31, 8 units, and Jan. 16, 1948, Kahn 4 plus, Kolmer 4 plus, titer unknown. The spinal fluid is normal. This young woman has married and is now three months pregnant. Her husband is negative. She is now a patient of mine and I wish to know whether she should have further treatment or if it is believed that her serologic titer will continue to fall. A check on the titer is to be made each month. This patient has no symptoms other than a positive serologic response at the present time.

M.D., California

ANSWER.—In view of the fact that this patient received something less than the probably desirable dose of penicillin for early latent syphilis (which is in the neighborhood of 5,000,000 units) and that she is now pregnant, retreatment with penicillin is desirable. There is some evidence that in pregnant syphilitic women penicillin in aqueous solution administered every two to three hours around the clock, is more effective than penicillin in oil and beeswax. It is suggested that the patient now be hospitalized and retreated with crystalline penicillin G, 50,000 units every two hours day and night for eight days to a total of 4,800,000 units. Following this, monthly quantitatively titered serologic tests for syphilis should be performed as after the original treatment.

"DICUMAROL" AND SEDIMENTATION RATE

To the Editor:—To what extent is the value of the blood sedimentation rate for determining progress in a case of myocardial infarction altered by "dicumarol" therapy?

G. B. Sanders, M.D., Louisville, Ky.

ANSWER.—In experimental myocardial infarction in dogs "dicumarol" is said to have had no effect on the sedimentation rate *(J. Lab & Clin. Med. 32: 1417, 1947)*. Heparin in vitro causes a striking but little understood inhibition of the rate of sedimentation of red cells. It is doubtful that the sedimentation rate would be altered appreciably by blood concentrations encountered in patients treated with heparin For practical purposes, the influence that anticoagulants may have on the rate of sedimentation of red cells may be disregarded. Finally, it may be added that the value of the sedimentation rate in gaging the progress of healing of a myocardial scar is doubtful. The test is nonspecific and is easily influenced by a variety of factors liable to interfere with convalescence from myocardial infarction.

OZONE TREATMENT

To the Editor:--What are the values and dangers of the "ozone treatment" for multiple sclerosis, arthritis, sinusitis, the common cold and influenza? Certain practitioners in Tucson are using radar rays in treating some of these conditions. Please supply information about ozone or radar treatments.

Elizabeth H. Laidlow, M.D., Tucson Ariz.

ANSWER.--Several pieces of apparatus for producing ozone have been placed on sale in this country during recent years These have been advertised extravagantly as effective in curing various diseases. On investigation, these machines have shown no therapeutic value and some have been condemned as harmful. The Federal Trade Comission has successfully taken court action to halt the unjustified claims of at least one manufacturer of this type of machine. In general, claims for the curative value of these machines have been supported only by testimonials.

In order for ozone to be effective even slightly as a bactericidal agent, it must be present in such high concentrations as are distinctly harmful to the mucous membranes of the nose, throat and lungs of man. If present in concentrations which can be breathed over reasonable periods without such irritation, no protective action against air-borne bacteria can be demonstrated, and certainly no therapeutic value against bacteria could possibly be expected. There is not one shred of scientific evidence to suggest that any ozone machine can help persons with the diseases mentioned.

MULTIPLE BIRTHS

To the Editor:—Recently a Syracuse mother, 40 years of age, was delivered of triplets after having been delivered of triplets in the pregnancy directly preceding this one. All six of the children are alive and healthy. As this is apparently an extremely rare occurrence, the entire community has become intensely interested. There have been varying reports as to whether there have been previously recorded two successive sets of triplets all of whom are living. I would greatly appreciate any information on this point and especially a reference to a a description of a previous similar occurrence.

M.D., New York.

ANSWER.--There are three well established records of the birth of triplets twice to the same woman (Hornstein, M.: Triplets Twice in One Year (Same Mother), *J.A.M.A.* 79:224, (Jan. 26) 1918; Uthmoller, A.: Two Sets of Triplets, *Zentralbl. f. d.ges. Gynaek. u. Geburtsh* 46:859-861 (May 17) 1922, and Breipohl, W.: Second Triple Pregnancy; Case, ibid. 61:931-938 (April 17) 1937. Breipohl refers to the book by E. Bumm, "Grundriss zum Studium der Geburtshulfe in Achtundzwanzig Vorlesungen," (Wiesbaden J. F. Bergman, 1902), in which von Boer and Valenta have reported many multiple births in one mother; for example, six sets of triplets, two sets of quadruplets. There are, of course, many reports of great numbers of children born to one mother in quantities of twins and triplets which are not well authenticated. A great many such instances are reported in the book by G. M. Gould and W. L. Pyle called "Anomalies and Curiosities of Medicine" (Philadelphia, W. B. Saunders, 1897).

MUSCULAR CRAMPS AFTER "MERCUPURIN"

To the Editor:—The note by Dr. A.H. Ulm, New York, in Queries and Minor Notes, THE JOURNAL, February 7, p. 434, on the occurrence of muscular cramps and paresthesias following the use of "mercupurin" is interesting. I have had the opportunity to observe several similar incidents. These symptoms can be promptly relieved by the administration of calcium gluconate and / or isotonic sodium chloride solution intravenously. Ten cubic centimeters of a 10 per cent solution of calcium gluconate will provide immediate relief. If this is not available, salt by mouth will give a similar but slower result. It is my impression that these symptoms are due to changes in salt balance secondary to diuresis. Most of these patients have been on low salt diets, and this makes them more susceptible. It hardly seems justifiable to blame the mercury for the reaction.

Perry S. MacNeal, M.D., Philadelphia.